Ahead of the Digital Curve

The Sussex Strategy – Digital and IT

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We will be recognised for our use of digital technologies in education, research, student services and university administration with performance, stability and security always a priority. Our community will be equipped with enviable levels of digital capability and competence in a wide variety of leading-edge technologies, ensuring success in the workplace of the future and in an evolving digital society.

Success will be defined by the following four success measures:

1. 99.999% uptime (less than 5.26 minutes per year) for services hosted by ITS by September 2022, excluding planned maintenance windows	2. 100% wireless coverage across all parts of the Falmer Campus with minimum speed of 40 mbps by September 2022
3. Effective implementation of annually prioritised IT Roadmap deliverables, to agreed cost/time/scope, through to 2023	4. 10% annual improvement in perception of overall IT service (PSQS-measured - baseline 51% in 2019)

The main aims of the *Ahead of the Digital Curve* Strategy are to:

1. **Lay the foundations for Sussex 2025**: *Get the network, platforms, security and governance right, adopting a cloud-first policy that improves levels of performance, scalability and resilience whilst moving us to a greener estate.*
2. **Set the standard for innovation in teaching and learning**: *Drive forward the UK HE sector by leading 21st century approaches to digitally enhanced education and deliver a distinctive yet outstanding student experience.*
3. **Support evolving operating models through data analytics and digitisation**: *Support delivery of the People Strategy by ensuring staff have the tools and skills to work efficiently and effectively in the pursuit of excellence.*
4. **Transform our environments**: *Create a Smart university with digitally enhanced learning environments, unconstrained by physical location, which is driven by data, a sense of community and safe collaboration spaces.*
5. **Enable research through the exploitation of digital**: *Enhance research capability and challenge conventional thinking through the adoption of game-changing tools and services facilitating the development of researcher skills, partnership working and an 'open by default' operating environment.*

Gap Analysis:

Our current generation of students have grown up in a digital world and have high, adaptive expectations of IT. Our students are 'always on'; conducting life and learning online and on-demand whilst calling for seamless connectivity through multiple devices. The next generation of students will have even higher expectations.

National Student Survey (NSS) feedback over recent years highlights that, digitally, we are not meeting student expectations. Negative commentary, largely in response to a lack of Wi-Fi capacity and coverage, poor reliability of services and an expectation of more modern digital services is common-place and this is damaging our attractiveness to future applicants – we *are* behind the curve in our use of digital platforms to enhance student experience.

The technology needs of Schools to deliver or support teaching, learning and the wider student experience has not been matched by investment in the digital tools and skills which manifests directly and indirectly through the feedback we receive. Lecture spaces, classrooms, cluster spaces and other study areas are inconsistently provisioned and supported.

Similarly, our research community has not had the comprehensive support nor systems befitting a research-intensive institution. Technology is integral to research, yet existing IT provision is based on traditional one-size-fits-all High-Performance Computing (HPC) and data storage. Ready access to collaboration tools, rapid supply of systems and open publishing are basic expectations of even the least technology-dependent research work. With increasing competition to win grant funding, produce 4* outputs and retain talent, there is a need to modernise all aspects of our research services.

If education and research IT provision are to be considered sub-standard, so too is the aging technology infrastructure that provides the foundations for our communities. On-premise IT data centres, along with key business systems, are at risk due to inadequate long-term lifecycle planning and decades of bespoke development, whilst networks and platforms are stretched due to obsolete infrastructure and the significant growth in the University size - this is reflected in capacity, performance, usability and resilience.

In summary, technology underpins every aspect of University life, yet IT has not been a part of strategic thinking. It has not even been a major part of the business planning process – it has been an afterthought. This strategy intends to take a 'whole University' outlook to address these issues.

Taking a greenfield approach, ITS will reimagine the way that technology supports students, education and research. The department will position itself as a key business function delivering transformational change. It will do this by adopting six key principles which, when taken together, will deliver a step-change through the use of modern services, systems, processes and governance. Above all it will drive a new culture; a pervasive digital culture that supports the ambitions of Sussex 2025 in all aspects.

The principles are:

1. **User experience will be at the heart of design** - *Focus on developing systems, skills and processes that meet user needs – users will jointly own design, delivering great experience.*
2. **Cloud services will be built upon strong foundations** - *Get the network foundations right and globally-accessible cloud services will be built upon providing efficiencies, greater service availability, improved productivity and a greener estate.*
3. **Secure, to standards** - *Cyber-security and accessibility will be primary considerations in design outputs considering the standards needed to maintain compliance with legal and regulatory requirements.*
4. **Simplified and standardised** - *We will reduce our complexity finding ways to loosely aggregate systems and information. Similarly, we will enable connections that encourage people to collaborate more closely and with more consistency.*
5. **Be flexible, efficient and embracing of risk** - *Through agile working and lean design, we will increase our capacity to deliver. Process re-engineering and AI will enable us to automate manual tasks, allowing staff to manage risk and concentrate on value-added work.*
6. **Prioritise outcomes** - *Continually develop products and services that enhance teaching,*

learning and research experiences, with a focus always on the end result.

These principles will guide decisions and choices that ITS makes over the coming years but importantly this strategy is as much about culture and skills as it is about tools. The technology itself, after all, is just an enabler.

Sussex 2025 refers to a foundation that provides "accessible, robust and agile" infrastructure to "enable our ambitions", thus the priority of this strategy will be to leverage the power and capacity of cloud services to drive flexible, reliable and innovative services and retire legacy infrastructure and systems. A new campus network will be absolutely core to all future University activity. We will be at the forefront of new and exciting methods of learning through the provision of personalised, accessible digital systems and we will provide truly internationalised online learning environments for students - regardless of device or location.

We will continually innovate being mindful of the rapid evolution of technology and the changing behaviour of our students, but never at the expense of stability, security or accessibility. Support for students and teaching will become data-driven, with greater insights into student progress and operational activity through the use of business intelligence alongside progressive machine learning analytics. Support and welfare services will be augmented by artificial intelligence (AI) helping students to organise themselves and their study to best effect. We will attract students to Sussex by positioning ourselves as UK-sector leaders for accessibility and we will help develop better understandings of how well our physical spaces are working through smart technology allowing adjustments to be made in ways impossible to do now.

To deliver a strategy of this extent is dependent on people and funding. It requires a repurposing of the ITS department; a movement from support function to innovation leaders. Changing the long-held perception of the department will mean reskilling the team with a focus on professional development along with a cultural shift and a new approach to recruitment – apprenticeships, internships and graduate schemes will all form part of this shift. It will also mean that 'business-as-usual' and transformational works will happen in tandem at periods to balance maintenance with the exploration of the innovative.

Going forward, ITS will consist of four teams each with their own modus operandi:

- The **Business Relations** team, with a focus to *understand* – to listen to, and capture, the needs of the University, ensuring the right skills are in place to function effectively and prioritise works to enable progression.
- The **Strategy & Architecture** team, with a focus to *design* and *protect* - to assist with, approve and feedback on design whilst monitoring, advising and educating the wider organisation about how to function safely and compliantly in a digital environment.
- The **Project Portfolio Office** with a focus on *change* and *deliver* – to take forward the demands of the organisation and deliver effective projects that transform our effectiveness.
- The **Operations & Research** team with a focus to *serve* – to take care of our customers and ensure that they have the tools available to them to work at maximum capability.

It also requires acknowledgement that significant strategic investment is essential to deliver the scale of change and, operating in a competitive market, we cannot afford not to invest. The associated five-year Technical Roadmap and Investment Plan highlights the projects and costs that are needed to deliver the ITS Strategy and also identifies the transitional journey that we will be taking. The medium-term financial operating model for ITS will change significantly as funding shifts towards commoditised services and this will need to be considered for the periods that supersede this strategy.

This strategy (2019-22) covers the first part of the journey to realising Sussex 2025 – laying the foundations. This is the period upon which everything else depends. For a University under-pinned by technology, this is the period that unlocks our ambitions.

We will deliver our aims by:		
AIM 1: Lay the foundations for Sussex 2025: ***Get the network, platforms, web estate and security right, adopting a cloud-first policy whilst moving us to a greener estate.***		
Key actions to be taken to deliver Aim 1	**By whom?**	**By when?**
1. Introduce resilient, high-performance wired and wireless networks offering ubiquitous connectivity across the University.	Director of IT; Director of Estates	2021/22
2. Full adoption of a Cloud First policy, with an agreed Cloud Strategy and Roadmap for migration of services that reduces the University's technical debt.	Assistant Director Strategy & Architecture	2019/20
3. Implementation of a new information security ecosystem, alongside an adaptive Information Security Policy framework, that incorporates privacy-by-design with strengthened governance arrangements (General Data Protection Regulation (GDPR), Cyber Essentials, Payment Card Industry Data Security Standard (PCI DSS)).	Assistant Director Strategy & Architecture	2022/23
4. Redevelop the University website and intranet, separating the two, creating a dual focus: - an online front door for public information and a cornerstone for external marketing - a secure internal information portal that allows the decoupling and retirement of existing information systems.	Director of IT; Director of External Relations	2021/22
5. Adopt a new simplified approach to identity and access management, ensuring one digital identity per individual, granting access to the right enterprise assets in the right context. To include single-sign-on, multi-factor authentication, federated services, lifecycle management, Application programming interface (API) access and, eventually, biometrics.	Assistant Director Strategy & Architecture	2020/21
AIM 2: Set the standard for innovation in teaching, learning and student experiences: ***Drive forward the HE sector by leading 21st century approaches to digitally enhanced education and deliver a distinctive yet outstanding student experience.***		
Key actions to be taken to deliver Aim 2	**By whom?**	**By when?**
1. Enhance all stages of the student lifecycle providing targeted, differentiated and integrated student-driven services that empower students and support employability.	Director of IT Director of Student Experience; DPVC Education and Innovation	2022/23

2. Provide online student support tools that offer real time access and data analytics that can enhance student welfare and allow for targeted pro-active interventions.	Assistant Director Business Relations; Director of Student Experience	2019/20
3. Realise embedded, supported and sustainable digitalisation processes for e-marking, assessment and feedback that support Teaching Excellence Framework (TEF) outcomes.	Director of IT; DPVC Education and Innovation	2021/22
4. Offer tools and techniques to enable more blended learning/teaching opportunities and options exploiting multi-channel (video, voice, audio,) working thus extending 121 student/lecturer time.	Director of IT; DPVC Education and Innovation	2023/24
5. Consider highest quality standards that ensure technology, infrastructure and systems are accessible and personalised so that every student gets an opportunity to learn and/or research without barriers.	Director of IT; DPVC Equality, Diversity and Inclusion; Director of Student Experience	2022/23
AIM 3: Support evolving operating models through data analytics and digitisation: ***Support delivery of the People Strategy by ensuring staff have the tools and skills to work efficiently and effectively in the pursuit of excellence.***		
Key actions to be taken to deliver Aim 3	**By whom?**	**By when?**
1. Simplify and loosely-couple the software estate ensuring that best-of-breed and niche technologies can be adopted quickly; but importantly be easily swapped out as models evolve.	Assistant Director Strategy & Architecture	2022/23
2. Create a Digital Academy to prioritise digital capability, ensuring staff have an understanding of the digital skills of their teams with identified gaps and plans to close them whilst building digital attainment into the core expectations of staff members.	Assistant Director Business Relations; Director of Library Services; Director of HR; Director of Student Experience	2021/22
3. Work across ITS, Schools and Professional Services using data to re-engineer business processes and digitise core service provision through the application of Lean user-centric design and agile delivery methods, e.g. Digital HR, enhancing customer experience/service.	Deputy Director Operations & Research; Assistant Director Business Relations	2021/22

4. Implementation of a fully integrated Business Intelligence (BI) and data analytics solution to inform all aspects of activity, decision-making and delivery of the Strategic Framework.	Director of IT; Director of Planning and Performance	2020/21
5. Develop a digitisation strategy to reduce the use of paper across University activities, increase the amount of teaching/learning content that is available digitally and make our collections fully accessible online.	Assistant Director Strategy & Architecture; Director of Library Services	2019/20
AIM 4: Transform our environments: ***Create a Smart university with digitally enhanced learning environments, unconstrained by physical location, which is driven by data, a sense of community and safe collaboration spaces.***		
Key actions to be taken to deliver Aim 4	**By whom?**	**By when?**
1. Joined up, ITS and Estates, strategy and roadmap for Smart Campus 2025, providing 'smart' (IoT, artificial intelligence (AI), robotic process automation (RPA)) and sustainable Design Principles as a prerequisite for all new builds and/or refurbishments.	Director of IT; Director of Estates; DPVC Education and Innovation	2024/25
2. Provide guidance, mentoring and training for the use of virtual spaces (e.g. ODL, VLE, Office 365, Box) encouraging interdisciplinary working and safe collaboration environments.	Assistant Director Business Relations	2019/20
3. Redesign teaching, learning and cluster spaces, producing a catalogue of standardised technology which can be deployed and optimised to support wireless presentation, Augmented Reality / Visual Recording (AR/VR), device-agnostic lecture capture and that allows students to learn or research on the device of their choosing (bring-your-own-device).	Director of IT; Director of Student Experience; Director of Library Services; DPVC Education and Innovation	2022/23
4. Develop a software globalisation plan to support software choices and content consumption, ensuring that students and staff have a consistent learning experience and ability to work no matter where they are in the world.	Assistant Director Strategy & Architecture	2020/21
5. Use artificial intelligence (machine learning, natural language processing, speech, etc.) to improve student and staff accessibility and effectiveness, as well as to cut operating expenses and the time spent on repeatable processes.	Assistant Director Strategy & Architecture	2023/24

AIM 5: Enable research through the exploitation of digital: ***Enhance research capability through the adoption of game-changing tools and services facilitating the development of researcher skills, partnership working and an 'open by default' operating environment.***		
Key actions to be taken to deliver Aim 5	**By whom?**	**By when?**
1. Collaborate with the Research community to develop an 'Enabling Research' technology strategy and roadmap to support future Research Excellence Framework (REF) outcomes, compliance requirements and an increasingly consistent level of 3* and 4* outputs.	Deputy Director Operations & Research; Directors of Research and Knowledge Excellence (DRaKEs); DPVC Research Excellence Framework	2019/20
2. Implement a range of administrative research support systems to enable an increase in research funding income, a higher percentage of successful funding applications and fully accessible insight of status across all research endeavours.	Deputy Director Operations & Research; Director of Research and Enterprise (RES); Director of Library Services	2020/21
3. Transition the ITS Research team from a hardware support function to research technology partner offering training, expertise and services that enable academics to concentrate on the research outcomes rather than managing technology.	Deputy Director Operations & Research	2020/21
4. Provide a service catalogue covering the research data lifecycle including computation, storage, preservation and curation, publication, discovery and re-use and the protection of intellectual property rights.	Deputy Director Operations & Research; Director of RES; Director of Library Services	2020/21
5. Provide the means to encourage Open Access making the primary outputs of publicly funded research results – publications and research data – publicly accessible with no or minimal restriction, whilst extending the principles of openness to the whole research cycle.	Deputy Director Operations & Research; Director of Library Services	2022/23

The broader benefits of this strategy meet the requirements of the four pillars of the Sussex 2025 strategy as follows:

Learn to Transform

Technology will drive innovation through our educating, complimenting and augmenting the skills of our academics and flexing to meet the changing and personal needs of our students. It will provide greater insight into what works well and what needs improvement. It will provide our students and staff with a greater capacity to acquire digital capabilities critical to future success. Technology will also level the field between different learning styles, abilities and even locations.

Where technology is used to enhance study on campus, so it should off-campus and this will offer students greater freedom and flexibility in how, when and where they learn.

Research with Impact

An evolution of technology offerings from a one-size-fits-all approach to individual and/or team provisioning. An increasingly progressive move towards partnership working between researchers and the IT Research Support service. The provision of tools and services that enable better support across all aspects of Sussex in relation to research bidding, management, sharing, openness, outputs and impact.

Engage for Change

Development of digital services that support greater collaboration, communication and sharing both within the University and beyond the campus. Provision of technology that does not just support, but enhances knowledge sharing and engagement, providing excellence in services to our external community as much as to those on our doorstep. Providing opportunities for partnership working with technology providers as Sussex' brand becomes more attractive and recognised for driving forward the sector.

Build on Strengths

The strategy will help grow the digital capabilities of staff across all areas of the University and continually look to develop our communities further in support of the People Strategy. By combining forces with Estates the strategy will support good planning, good investment, good delivery and good environmental impact and work in symbiosis with the Estates Strategy. IT staff will become advocates for change underpinned by values and processes that ensure excellent governance and security of information.

For this *Ahead of the Digital Curve* strategy to be delivered effectively, the following also need to be in place:

1. Outstanding communications and training plans that support our objectives.
2. Recognition that significant investment is required that is balanced between IT and Estates capital investment.
3. Joined up Programme and Project approach across the whole university with effective prioritisation of works.
4. A genuine and positive engagement in the process of change.
5. Symbiotic IT and Estates strategies that support the People Strategy.
6. Partnership working with all aspects of Professional Services and Schools.
7. Greater engagement with Heads of Schools and DRaKEs.
8. A series of short, sharp concept proofs with an understanding that failure is as expected as success.
9. Openness and transparency about what is needed and what people aren't happy about – not every good idea will be appropriate.

What would stop us being able to deliver this strategy (key risks to its implementation)?	
1. Catastrophic income drop resulting from a combination of Augar, Brexit, poor Teaching Excellence Framework/Research Excellence Framework/Knowledge Excellence Framework and/or falling student demand. 2. Inability to fund the scale of change required to meet the changes necessary to transform. 3. Lack of buy-in across the University to the strategy. 4. Culture change occurring too slowly or too inconsistently. 5. Failure to collaborate and join-up approaches across different disciplines. 6. Ineffective prioritisation of projects and works across the University.	
How will this strategy help us mitigate the following key institutional risks (taken from the current Institutional Risk Register)?	
The referendum decision to exit the European Union negatively impacts on student recruitment, research income and the recruitment/retention of high calibre academic staff	• Help to maximise research income and outputs • Support a compelling offer to prospective students • Help to make the University an exciting place to work
Industrial action (national) by staff disrupts teaching/assessment, compromising education and the student experience, resulting in complaints and claims for compensation	• Provide technology that fully supports flexible working • Increase resilience by ensuring there are fewer single points of failure across the technology estate
Failure to meet the requirements of the Teaching Excellence Framework negatively impacts both the reputation of the University (and hence numbers of staff/students wishing to come to Sussex) and its ability to link the fees it charges to inflation	• Provide technology that offers greater insight and knowledge of performance at all times rather than just at point of return
The University's failure to adequately respond to an increasingly competitive, diverse and changing environment/marketplace leads to falling reputation and attractiveness of the institution to both staff and students	• Provide industry leading technology uses that increase the attractiveness of Sussex as an institution • Use effective external communications to highlight the benefits the University is reaping through the adoption of modern technology and approaches • Iterative and continual innovation in rapidly changing environment
A failure to maintain both the quality of students and/or their experience as a result of growth over the past three years	• Ensure that technology enhances the experience for existing students, encourages new students and gives us greater understanding of what we do well and what we can improve

Failure to recruit, develop and retain talented staff materially impacts the University's ability to deliver world-class teaching and research	• Ensure digital capability opportunities apply to all members of the Sussex community • Provision of a fully-featured Research IT environment available to all research staff and students

Equality, Diversity and Inclusion analysis:

ITS shares the goals and aspirations of the 2025 Strategic Framework and promises to provide equal access to excellent learning, research and employment opportunities regardless of physical or unseen disabilities. It also commits ITS to become "a place that celebrates diversity and tolerance" and is "flexible by default".

Equality, Diversity and Inclusivity strengthens ITS by attracting a more diverse workforce with a broad range of backgrounds and experience. To this end we have appointed an Equality, Diversity and Inclusivity (EDI) champion to assist with implementing the following goals that will guide the growth and development of the team:

- To adopt industry standards for EDI as set by organisations such as Stonewall, Race Equality Charter, Athena Swan and the Disability Confident Scheme, in addition to legislation and standards set by government
- To consult with and proactively promote the EDI values of the University to the staff and management of ITS
- To remove bias from our recruitment process we will adopt a process of blind recruitment which will remove all identification, gender, disability, ethnicity or religious background information from candidates' CVs during the shortlisting phase
- To encourage diversity we will explicitly promote the fact that we welcome applications from persons of any age, gender, sexuality, ethnicity, religion or disability
- To be flexible with interview and working arrangements, for instance, facilitating interviews via video where it may be impractical or expensive for the candidate to travel
- To accommodate the diverse needs of our staff such as allocation for prayer time, flexible working arrangements to accommodate family commitments, or special workspace equipment to supports persons with disability
- To regularly review our operating processes to ensure that no racial, sexual, religious or disability based bias is applied
- To remunerate equally regardless of gender, ethnicity, sexuality religion or disability
- To work proactively with the EDI Unit at the University to ensure that ITS is meeting, setting, or exceeding the standards for EDI expected by the University
- To promote an inclusive working environment where no employee is excluded based on conscious or unconscious bias by promoting the role of EDI champion within ITS providing regular information, presentations and support for EDI.

Achieving equality, diversity and inclusion is fundamental to the success of the ITS. What is necessary for some is generally good for all and, in delivering change to address inequalities for particular parts of our communities, we will strive to deliver solutions that deliver benefits to all of us.