



THE UNIVERSITY *of* EDINBURGH

College of Arts, Humanities and Social Sciences



College of Arts, Humanities & Social Sciences

Information Strategy 2019-22

Enhancing the student and staff digital experience

through the appropriate use of
technology and information
in support of our strategic
goals in teaching, research and
knowledge exchange.

Introduction

The College information strategy sets the overall direction for the College's use of technology and information to support our strategic goals around teaching, research and knowledge exchange.

The strategy expresses the priorities of the College for technology and information service providers in Schools, College and central partners. It defines a framework for activity and investment in information. It draws and builds on the outcomes of the previous strategy and consultations with service users, senior managers and the staff providing services.

The strategy is more ambitious than the previous, our first, which was necessarily pragmatic. Whilst heavily influenced by technology, the strategy is nevertheless people-focussed; staff and students in the College. Staff-student, student-student and staff-staff relationships can be enabled and supported using digital means. This strategy includes, as a thread running through many of the actions, how the College will use digital means to support and enhance these relationships.

Strategic links

The information strategy speaks to and links to the University, College and its Schools plans through the following:



The ambitions and initiatives contained in this document have been mapped against the four key focus areas from the University Strategy 2030; people, teaching and learning, research and Social and civic responsibility. We will also draw links where relevant to the United Nations sustainable development goals which “provide a meaningful and comprehensive manifesto to which we will contribute.”

Operational links

The strategy links operationally through the College academic committee structure, from LISC out through to College Undergraduate Learning and Teaching, Quality Assurance and Postgraduate Studies and Research Committees through the executive members of those committees. Links to the School technology teams is via the College Computing Professionals Advisory Group through the College CIO. The College CIO also ensures linkages to ISG and other central service providers through their senior managers.

Action plan

This strategy is accompanied by an action plan containing the detail on how it will be delivered. While the strategy is fixed, the action plan will be reviewed and updated regularly.

Introduction

Second College information strategy	Our institutional and School websites are our primary shop window to what we offer the world through learning, research and knowledge exchange. For our College, the primary audience remains potential students. School websites will focus on added-value information around the discipline and School-specific information and that which emphasises the sense of community within Schools.
Vision	To enhance the student and staff digital experience through the appropriate use of technology and information in support of our strategic goals in teaching, research and knowledge exchange.
Strategic and operational links	The strategy links vertically to various plans and strategies at University, College and School level. Operationally it links through the College academic committees and operational groups such as CPAG.
Action plan	The strategy will be accompanied by a dynamic action plan that sets the detail of how the strategy will be delivered. The action plan is updated at least annually.



Teaching and Learning

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| 1.1 Continue to promote the development of School technology enhanced learning (TEL) plans | Schools continue to be encouraged to develop specific TEL plans or to embed in their overall School plan. Plans should encompass a number of specific areas as a minimum as set out in the strategy and should be governed by an appropriate School-level committee or group. Adoption of the Learn Foundations framework is expected and we will shape that to meet our specific requirements. |
| 1.2 Online learning; growing overall numbers, eliminating barriers, demystifying | The growth of online learning in the sector is inevitable and managed strategic growth in the College is necessary. We need to demystify and eliminate barriers to uptake with academic staff, supporting them through our professional learning technologists. Online learning must remain true to our values-driven approach in the University, using technology to enhance learning and support relationships rather than replace. |
| 1.3 Learning analytics; using data ethically, securely and to enhance the student experience | We will leverage the opportunities of learning analytics but only to support our students in achieving their full potential. The College will work with central services to develop dashboards for academic and professional services student support staff and students themselves that leverages the power of our data. |
| 1.4 Information, data and digital literacy | No student will be able to graduate without being appropriately literate in information, data and digital. These capabilities will ideally be baked into our academic programmes. In support of this, we will aim to deliver a pre-sessional digital induction to the University and to develop a credit-bearing course available to all students in the College. |
| 1.5 Edinburgh Futures Institute | The concepts of hybrid learning will require different techniques and technologies to be utilised but will utilise centrally supported tools as a basis. Opportunities will come from the ability to deploy these techniques and technologies across the College. |
| 1.6 Deliver innovative, discipline specific tools and services | We will expand the technology enhanced learning ecosystem from a centrally supported hub using carefully evaluated cloud-based technologies only where they truly enhance the learning of our students and in partnership with central services. |

Research

- 2.1 **Rebooting Digital Scholarship** The College Digital Scholarship programme of activity will be subsumed wholly into the new Centre for Data, Culture and Society as its vehicle for providing training to staff within the College on digital techniques that support our research. This will open up new opportunities for our researchers in digital research and the subsequent funding available.
- 2.2 **Use of Central High Performance Computing** The College will work with Digital Research Services to eliminate barriers to entry, accelerating analyses in relation to current desktop provision and open up new opportunities with very large datasets and texts.
- 2.3 **Data management plans** Technology teams co-working with Research Admin teams will support researchers to develop appropriate data management plans for all research projects and ensure recovery of costs wherever possible and an exit strategy for the digital outputs is considered.
- 2.4 **Edinburgh Futures Institute** The College's vehicle for big data and data-driven research, EFI will also be the University testbed/flagship for internet of things (IoT) and intelligent campus with sensor-rich, open systems and super-fast data connectivity within and into the building.
- 2.5 **Extend into the cloud using Microsoft Azure** Local compute and data storage will be extended into an elastic and secure cloud platform by leveraging our existing relationship with Microsoft allowing expansion beyond what the University can provide immediately.
- 2.6 **Supporting and enabling the College open research strategy** The information strategy supports the College open research strategy through ensuring the provision of technical support, guidance and technologies to enable the sharing of outputs, data and methods.
- 2.7 **Leverage our research information systems** All research active staff and students where they have qualifying research publications should have a presence in Pure and should maintain their information contained within. In turn, we will ensure that the information held in Pure can be used in multiple ways to avoid duplication of data entry.
- 2.8 **Internal and external research data** Partnering with the University data library service to store, curate and facilitate access to our research data through the DataShare service, we will also facilitate discovery of other Universities' datasets so that we can make use of that data for our own research.

Social and civic responsibility

- 3.1 **Website strategy** Our institutional and School websites are our primary shop window to what we offer the world through learning, research and knowledge exchange. For our College, the primary audience remains potential students. School websites will focus on added-value information around the discipline and School-specific information and that which emphasises the sense of community within Schools.
- 3.2 **Industry engagement** The College will utilise a single customer relationship management platform to record and monitor our industry engagement across Schools and research centres shared with Edinburgh Innovations and City Region Deal.
- 3.3 **KE and impact** In support of the next REF exercise, we will enhance the information promoted through the College research impact microsite and School, Centre, Institute or project-specific sites. Alternative metrics will be used appropriately to demonstrate impact. Academic staff are guided in this area by the College academic digital footprint resources and checklist.
- 3.4 **Sustainable ICT** The College will strive to ensure that we purchase the minimum number of devices required for staff to fulfil their role and that device will be replaced on a regular cycle. We will aim to reuse all working ICT equipment in the College, either internally in the University or externally via our local partners.

People

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|------|---|---|
| 4.1 | Business intelligence and university data as asset | We will build on our mature College BI service to extend into new techniques such as machine learning that use data to assist staff in their roles by providing insight, predictions and to aid decision making. We will aim to utilise our own data as much as possible, where it helps staff deliver our strategic goals and is ethically appropriate. |
| 4.2 | Maximising ease of use of data to make data-driven decisions | The College will develop a culture of utilising data to inform decision making. We will work with our partners in central services to make it easy to find, explore and analyse the information we hold to support business decisions. |
| 4.3 | Delivering support to utilising University data | The College BI team will work in partnership with central and local services to co-ordinate use and understanding of our institutional data, maximising appropriate and ethical usage of our student data to support students and provide the best possible pastoral care. |
| 4.4 | Information security | We will drive a culture of information security awareness with all of our staff, appropriate to their role. Access to certain systems or data will be dependent on successful completion of appropriate training, evaluated by risk to the institution. |
| 4.5 | Data storage | The ability to easily store and ready access to College data for teaching, research and administration is essential in enabling staff and students. College data for teaching, research and administration should be stored on centralised, managed infrastructure unless there is a specific technical requirement not to do so with secure mobile access enabled through the use of OneDrive. |
| 4.6 | Outcome of the technology support review project | The College will implement the agreed actions from the review within the period of this strategic plan including a target operating model for technology support services that tackles the gaps identifies, follows the vision and principles agreed and maximises the benefits for our users. |
| 4.7 | Service and project management | College teams will continue to professionalise and standardise around key methodologies such as Agile and ITIL, using data to inform decisions and changes. |
| 4.8 | Digital skills and capabilities | Our supporting resources will continue to develop working with ISG, Institute for Academic Development (IAD) and central HR to embed digital capability wherever possible. Through the Centre for Data, Culture and Society, we will provide opportunities for staff to develop new, specialist and discipline-specific, digital capability not provided centrally. All staff will be supported, encouraged and enabled to consider digital capability as a priority. |
| 4.9 | Internal communications | The College intranet continues to be the primary tool to enable internal dissemination, collaboration and digitalisation of our processes in a secure and scalable manner. Consideration will be given to additional tools to support internal communications to our students. The College will work in partnership with the Students' Association to enable the Student Voice through appropriate digital technologies. |
| 4.10 | External collaborations; platforms that allow secure, scalable collaboration across institutional boundaries | The College will provide secure, standard and, where necessary to support specific requirements, custom platforms to enable external collaboration in line with our cloud-first approach primarily based on our existing Office365-based toolkit. |
| 4.11 | Enabling infrastructure | Our technology infrastructure enables staff and students to work, study, teach and research. Technology infrastructure within the College will be based on central or cloud-based services wherever possible. Where this is not possible we will aim to co-locate our infrastructure in central datacentres in order to benefit from power and data resilience as well as increased energy efficiency. |

Section 1

Teaching and Learning

A core principle to the use of technology in teaching and learning is that it should always be appropriate and must and enhance the students' learning. This section is focussed around providing the best possible student experience using technology, and the support for, or capabilities required by academic staff to achieve this.

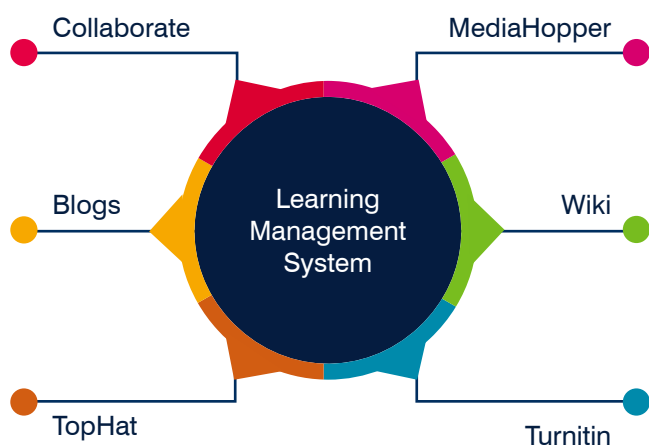
1.1 Continue to promote the development of School technology enhanced learning (TEL) plans

As for the previous strategy, we continue to encourage and promote the development of School technology enhanced learning plans. These can be separate plans or embedded in overall School plans. Plans at School level maintain the close connection to the academic disciplines required for TEL activities and these must all enhance rather than replace the learning and student experience. Plans would be subject to the School governance process.

School plans should however seek to consider the following strategic topics:

- Engagement with the virtual learning environment in the School and seek to set appropriate minimum standards including standardised templates to ease student navigation
- Electronic assessment and return of feedback
- Learning analytics to support students, deliver better learning outcomes and to monitor effectiveness of our technology enhanced learning
- Use of video such as lecture capture but also in flipped learning models
- Resourcing through professional learning technologists
- Development of best practice in specialist support for learning technologies in local teams
- The virtual learning environment as the wider ecosystem of learning technology tools connected to Blackboard Learn or Moodle as the learning management system at the hub
- Selective and strategic growth of online learning numbers and the tackling of barriers to uptake

All Schools are expected to adopt the standardised course framework as a base for content in Blackboard Learn, which allows for the appropriate degree of customisation that the Learn Foundations project¹ defines. We must continue to help shape that project to ensure that it meets our specific requirements and ensure that this standard framework must not homogenise the academic content contained within.



¹ <https://www.projects.ed.ac.uk/project/tel057>

1.2 Online learning; growing overall numbers, eliminating barriers, demystifying

No longer just at a distance, many of our current online courses have on-campus students enrolled on them. This is how many students now choose to undertake their learning and we should accept and embrace this model where it is appropriate to the learning and enhances the students' overall experience.

There are also benefits to the College and its Schools in leveraging this model –concerns that this will assist with include constraints on available teaching spaces and to mitigate challenges from future changes in immigration law. More strategically, our traditional competitors are advancing in this area and in this global market, competition may come in future from non-traditional disruptors like Google and Amazon or start-ups such as Teachur or Woolf². Growth in numbers must be appropriate and strategic, adding value to our overall offer rather than growth for growth's sake.

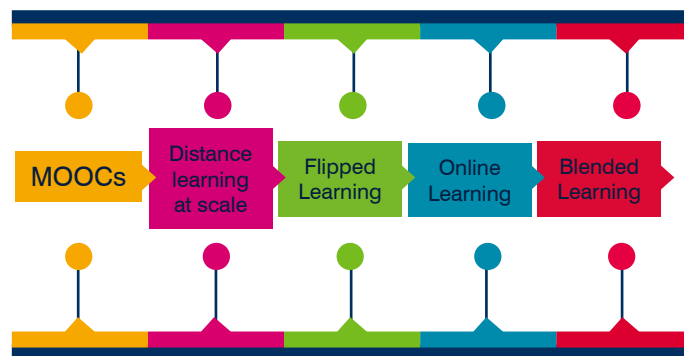
However, online learning is not a separate entity only for the technically adept, it is part of a wider spectrum of technology enhance learning and when embedded and joined to that wider context is more effective and efficient to develop and deliver, with potential reuse of resources and techniques across these boundaries.

We recognise that there are real and perceived barriers to uptake and we will strive to eliminate those barriers and demystify the subject. Across the College we will aim to have activity in all areas of the spectrum and to be utilising techniques across boundaries where it enhances the student experience.

Professional learning technologists closely aligned to the academic disciplines will be instrumental in assisting and supporting academic subject matter experts in moving more to online learning and early engagement is key to this success. Learning technologists will assist and facilitate using University learning design methodologies such as ELDER. Whilst ELDER is better suited to programmes, the College will work with central services to help co-design lighter-touch learning design methodologies that can be used at course level.

The College TEL group have developed an action plan to deliver our ambitions in this area and it will be incorporated into the information strategy action plan. The TEL groups feeds into relevant College academic committees via the College CIO.

Overall, our online learning, alongside our on campus learning, should be values driven. We will be guided in our use of technology by the values defined in the Near Future Teaching project³; *experience over assessment, diversity and justice, participation and flexibility and relationships first.*



² <https://www.teachur.co/> and <https://woolf.university/>
³ <https://www.nearfutureteaching.ed.ac.uk/outcomes/>

1.3 Learning analytics; using data ethically, securely and to enhance the student experience

*The measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs.*⁴

Learning analytics presents great opportunities when used appropriately and in line with the University learning analytics principles⁵. We should aim to leverage this opportunity, using our existing student data, but only to enhance the student experience, support our students in achieving their full potential and provide the best possible pastoral care.

As the College with the largest numbers of students, we should engage with the University learning analytics agenda and aim to embrace learning analytics as broadly as possible with School TEL plans reflecting this.

The College will work with central services to develop dashboards for academic and professional services student support staff and students themselves that leverages the power of our data to:

- Highlight to students how they are performing against their own expectations
- Highlight to academic and professional services staff when individual students may need additional support to achieve their potential
- Understand how our courses and programmes can be enhanced

1.4 Information, data and digital literacy

Within the lifespan of this strategy, we will aim to ensure that no student is able to graduate without being appropriately literate in information, data and digital. We will guide them to the capabilities they will need and provide appropriate resources to do so.

This will require the College and its Schools to embed digital capabilities appropriate to the discipline within our courses and to make opportunities available to our students to develop those capabilities through School, College and University training opportunities. The College should expand its work on digital capability for staff to include students, defining a digital profile for students that enables and facilitates.

Academic staff should be encouraged to leverage the support of the University academic support librarian⁶ expertise in developing student information literacy. The College will work with this team to design and implement an online information literacy course, available to all students and ideally credit-bearing. Information, data and digital capability should be part of the learning design process and methodology used in the University.

The College will also work with central service to provide a digital on-ramp to new students so that they are equipped to interact with our digital services on arrival at the University.

⁴ 1st International Conference on Learning Analytics & Knowledge, Banff, Alberta, Canada in 2011

⁵ <https://www.ed.ac.uk/academic-services/policies-regulations/learning-and-assessment/learning-analytics/principles>

⁶ Information on your ASL can be found here: <https://www.ed.ac.uk/information-services/help-consultancy/rm-and-consultancy/academic-support-librarians>

1.5 Edinburgh Futures Institute requirements

Edinburgh Futures Institute (EFI) presents both an opportunity and a challenge to the way technology enhances and facilitates teaching. The concepts of hybrid learning will require different techniques and technologies to be utilised but, in line with the overall strategy of the College, will utilise centrally supported tools as a basis.

Opportunities will come from the ability to deploy these techniques and technologies across the College where they are appropriate to do so, once tested within the EFI context. In doing so, we must recognise that EFI should not be seen as the only place for innovation in technology enhanced learning.

1.6 Deliver innovative, discipline specific tools and services, built on cloud or centrally provided technologies, that enhance the learning of students on and off campus

Using a firm foundation of centrally provided tools as a hub, we will expand our virtual learning environment (VLE) ecosystem with the addition of cloud-based technologies where they enhance the student experience. These should be tightly integrated to our learning management systems and must allow students access through single sign-on. New technologies must be evaluated appropriately and with input from learning technology professionals, academic staff, students and partnering with central services.

Section 2

Research

Employing new digital research techniques opens up additional opportunities for the College. This section sets out how the College intends to use technology in support of our research ambitions. It is concerned with digital research itself as well as how we use technology and data to disseminate the work we undertake and maximise its global impact.

2.1 Rebooting Digital Scholarship

The College Digital Scholarship programme of activity will be subsumed wholly into the new Centre for Data, Culture and Society⁷ as its vehicle for providing training to staff within the College on digital techniques that support our research.

It will continue to offer support, funding and other opportunities to all researchers, PhD students and the professional services staff that support them but under the strategic direction of the Centre. This will continue our aim of opening up new opportunities for our researchers in digital research and the subsequent funding available.

Within this context, we will strengthen our partnership with all areas of information services, but particularly with Library and Digital Research Services. We will assist researchers in understanding the breadth of support available to them by setting out the landscape, signposting the services and promoting a single point of contact for digital research services at School, College and University level.

We will work with the central Digital Research Facilitator team to ensure that researchers have access to all the services available and this team will work to bring together service providers to best affect a solution. This will include online as well as on campus resources.

2.2 Use of Central High Performance Computing (HPC); eliminate barriers to entry, accelerate analyses

Use of central HPC in the College continues to be disproportionately low and as a result, researchers are not taking advantage of the increased speed of analysis that would result. Researchers in our disciplines predominantly use desktop computing to undertake analyses and this then limits the dataset size or increases the time to complete.

We will look to colleagues who run the University HPC services to provide support, training and guidance to reduce the barriers to entry for many of our researchers in making this transition. This will require different approaches to those traditionally employed by the University HPC teams, but will offer great opportunities for developing new methods. We will work together to define environments that facilitate digital research in our disciplines using HPC technologies and ensure wherever possible that the software used on desktops is available on our HPC environments with a particular focus on text mining and visualisation.

⁷ <https://www.cdcs.ed.ac.uk/>

2.3 Data management plans; co-working with Research Admin teams, recovery of costs wherever possible

Data management plans are crucial for all research projects in ensuring that the resulting data, physical and digital, is stored, secured and archived through the life of the project. Projects will follow the College and University research ethics processes and this will ensure that appropriate information security measures are taken to manage the data produced.

We should aim for all research projects to have a data management plan appropriate to the research being undertaken and to the funding being sought – with a light touch plan for unfunded research. All costs for digital research should be costed and recovered wherever possible to ensure that digital research services and outputs provided remain sustainable in the long term. We will work with researchers in their funding proposals to ensure that costs beyond the life of the project are understood and outputs are reviewed regularly. We will define an exit strategy for the digital outputs that satisfy funder requirements without incurring unnecessary costs to the institution as part of the data management plan.

To achieve this, both research and technology support services at School, College and University level will work together and at the earliest opportunity with the researcher to develop, cost and support project plans.



2.4 Edinburgh Futures Institute; big data and data-driven research, EFI as University testbed/flagship for internet of things (IoT) and intelligent campus

Data in EFI will predominantly be stored and managed centrally, with analysis at central local level as appropriate to the needs of the researcher. It will be the home of the Centre for Data, Culture and Society and as a result the hub of the College's data driven innovation initiatives. The EFI building itself will be a testbed for the University internet of things (IoT) and intelligent campus initiatives and through this become a living lab for data on the building that can be used in our own research and teaching.

Sensor-rich, open systems and super-fast data connectivity within and into the EFI building will be essential in enabling this work.

2.5 Extend into the cloud using Microsoft Azure

The use of secure and scalable cloud services presents an opportunity for College researchers to extend their digital research out of the University infrastructure where needed. The cloud offers the ability to increase and decrease resources on a completely elastic basis in a responsible and highly-secure way.

The University already makes use of cloud services from Microsoft for a number of business-critical services such as email, intranet and collaboration tools and has a specific privacy agreement that enables us to use Microsoft cloud for sensitive data subject to suitable data protection impact assessments (DPIA⁸). The Microsoft cloud offers a level of security that all but our most secure environments within the University cannot offer. For this reason, the use of Microsoft tools is preferred in order to minimise the cost and effort involved, but not mandated. School and College teams need development to support researchers in extending into Azure and we will need to develop a support model that enables researchers to benefit from this technology, where it is appropriate for our teaching, research or administration.

Where there is a better fit with other cloud providers such as Amazon Web Services, we should facilitate this but recognise that additional effort will be required to ensure appropriate levels of data protection to match what we already have with Microsoft. We will work with central services to develop a cost and support model that can be included in all research proposals

⁸ <https://www.ed.ac.uk/records-management/guidance/checklist/data-protection-impact-assessment>

⁹ <https://uoesharepoint.com/sites/hss/college-office/research-ke/research-information/rke-strategy/SitePages/Open-Research-Strategy.aspx>

¹⁰ <https://www.un.org/sustainabledevelopment/peace-justice/>

2.6 Supporting and enabling the College open research strategy⁹

Open Research (also referred to as Open Science) denotes research that is conducted in an open and transparent manner, in which the processes followed, the data collected, and the outputs produced, are available openly and freely. It implies ways of working that make research more transparent, inclusive, open, collaborative and efficient. It includes open access to publications, open data and open methods and supports goal 16 of the United Nations Sustainable Development goals¹⁰.

The information strategy supports this through ensuring the provision of technical support, guidance and technologies to enable the sharing of outputs, data and methods. As is demonstrated in the open research strategy, the University is in a great position with regard to enabling and supporting services for all aspects of the open research agenda in the College. We need to ensure that researchers are aware of and making use of these services. We also need to ensure that we provide specialist and discipline-specific support to researchers in making use of these services.

The College will also need to consider how it financially enables researchers to engage with open research, particularly open monographs whose maturity is similar to open access 5+ years ago. The College should consider open publications in all forms as a cost of undertaking research in the arts, humanities and social sciences, similar to other College's provision of laboratories or other large research infrastructure.



2.7 Leverage our research information systems

The University operates two key research information and management systems that support the research within the College; Pure and Worktribe. Access to additional secondary tools are also provided; Altmetric, SciVal, ResearchFish and ORCID.

All research active staff and students where they have qualifying research publications should have a presence in Pure and should maintain their information contained within. In turn, we will ensure that the information held in Pure can be used in multiple ways; such as to support REF submissions, to generate academic CVs and to populate personal web pages.

Worktribe should be considered our research management tool and as such is primarily targeted at research support and administration staff. We do not expect researchers to have to engage with this system unless there is a specific desire to do so

2.8 Internal and external research data; facilitating discovery, access and analyses, working with the Data Library

The data that we generate through our research activities and that are generated by our peer Universities can help us derive new insights and drive greater impact for our research.

We will work with the University data library to store, curate and facilitate access to our research data by encouraging the use of the DataShare¹¹ service for all appropriate research data. We will also look to the data library to facilitate discovery of other Universities' datasets so that we can make use of that data for our own research.

The College research technologist within the Digital Innovation team will provide support and solutions to assist with the mining and visualisation of these data and University Digital Research Services will provide access to high performance compute platforms with appropriate software for analysis.

¹¹ <https://www.ed.ac.uk/information-services/research-support/research-data-service/after/data-repository>

Section 3

Social and civic responsibility

The College will use technology and digital methods to deliver positive change, locally and globally. The strategy contributes to UN sustainable development¹² goals through these initiatives in particular.

¹² <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

3.1 Website strategy; what is our web presence for?

Our institutional and School websites are our primary shop window to what we offer the world through learning, research and knowledge exchange. For our College, the primary audience remains potential students but recognising that there are multiple secondary audiences.

The University has defined a website strategy that the College fully endorses. The College has undertaken its own work to respond to that strategy, led by the College marketing and communications community, and will deliver a number of activities over the life of this strategy¹³.

Work is underway in SEP that will directly impact on student recruitment information on our websites. We will work with that project to co-design solutions that maximise the opportunities of our web presence to ensure the best possible applicant experience. We will not duplicate information on School websites, instead focus on added-value information around the discipline and School-specific information and that which emphasises the sense of community within Schools.

3.2 Industry engagement; facilitation through use of single relationship management tool, shared with Edinburgh Innovations and City Region Deal¹⁴

The College will utilise a single customer relationship management platform to record and monitor our industry engagement across Schools and research centres. This CRM will be shared to derive greatest benefit from the data held within. All areas of the College will have access to these data with appropriate governance and security.

¹³ <https://uoe.sharepoint.com/sites/hss/projects/CAHSS-web-strategy/>

¹⁴ <https://www.ed.ac.uk/local/city-region-deal>

3.3 KE and impact; tools to demonstrate reach and impact of research, altmetrics and other analytics, use of Pure and its application programming interface (API), personal web pages, academic digital footprint

For our research, we will continue to promote the research outputs, impact and activity through School, College, Centre and project-specific web presences. In particular, in support of the next REF exercise, we will enhance the information promoted through the College research impact microsite¹⁵.

The appropriate use of alternative metrics¹⁶ should also be used to measure the impact of our research outputs. This also supports the College open research strategy and recognises the influence that social media and other alternative sources can have to help demonstrate the impact of our research globally¹⁷.

Pure, as the University current research information system is not only our means of supporting REF. As the repository for all our research information, it is our global research shop window and is usually the top link for appropriate search terms in search engines like Google. We will use the Pure API to feed other systems thus maximising the information held within and encouraging academic engagement with the platform.

All staff, but particularly academic staff should actively curate their digital footprint starting with a University personal web page that draws down publication data from Pure dynamically and links out to other professional networks such as Research Gate and LinkedIn. The College provides guidance which should be followed by all staff as appropriate to their role¹⁸.

¹⁵ <http://impact.hss.ed.ac.uk/>

¹⁶ <https://www.altmetric.com/explorer>

¹⁷ <https://esrc.ukri.org/research/impact-toolkit/social-media/using-social-media/>

¹⁸ <https://uoesharepoint.com/sites/hss/resources/academic-digital-footprint/>

3.4 Sustainable ICT; reuse policy, equipment purchasing policy, power saving measures

The University of Edinburgh has committed to become zero carbon by 2040. The University's Climate Strategy 2016¹⁹ lays out a comprehensive whole institution approach to climate change mitigation and adaptation in order to achieve its ambitious targets. Energy consumption from ICT equipment constitutes significantly to overall energy usage and our overall energy costs. Sustainability of the College's ICT related infrastructure can be categorised into three areas; procurement, running costs and disposal.

The College will strive to ensure that we purchase the minimum number of devices required for staff to fulfil their role and that device will be replaced on a regular cycle. We will aim to reuse all working ICT equipment in the College, either internally in the University or externally via our local partners, supporting goal 12 of the UN Sustainable Development goals²⁰. Where equipment no longer works, it will be disposed safely and recycled. All our technology assets will be recorded and managed, from purchase through to disposal, using the College hardware asset management platform.

We will look to implement the most effective energy saving settings on our equipment without overly disrupting the student experience and will aim to purchase the most energy efficient equipment from our standard suppliers at all times. Work will continue with the University Desktop Services team to implement more sophisticated energy saving hardware and software for our desktop equipment. In line with University policy, the College print and imaging equipment will be large, cloud print-enabled, multi-function devices, printing duplex by default.

Finally, we will use technology to assist with the reduction in business travel by air through the most reliable and effective video conferencing and collaboration tools. We will aim to specify all our meetings spaces to be Skype for Business enabled with good quality cameras, screens and microphones that can be relied upon to work reliably at all times.

¹⁹ <https://www.ed.ac.uk/about/sustainability/what-we-do/climate-change/initiatives/zero-by-2040/read>

²⁰ <https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>

Section 4

People

The College will not use technology for technology's sake. We will do so where it supports our staff and our students in achieving their goals or to enhance their experience at the University.

4.1 Business intelligence and university data as asset

The College now has a mature business intelligence (BI) function producing a number of strategic reporting and dashboard solutions for the College and its Schools. We will build on this to extend into new techniques such as machine learning and analytics that use data to assist staff in their roles by providing insight, predictions and to aid decision making.

We will aim to utilise our own data as much as possible, where it supports our strategic goals and is ethically appropriate. Where analytics is extended beyond pure learning analytics set out earlier in this strategy, similar principles will be established to guide the use of the data for that purpose reinforcing the importance of human intervention.

4.2 Maximising ease of use of data to make data-driven decisions

Alongside the tools, we will develop a culture of utilising data to inform decision making. We will work with our partners in central services to make it easy to find, explore and analyse the information we hold to support business decisions. This will be done both through ensuring the tools we use are highly-intuitive but also through promotion and training where required.

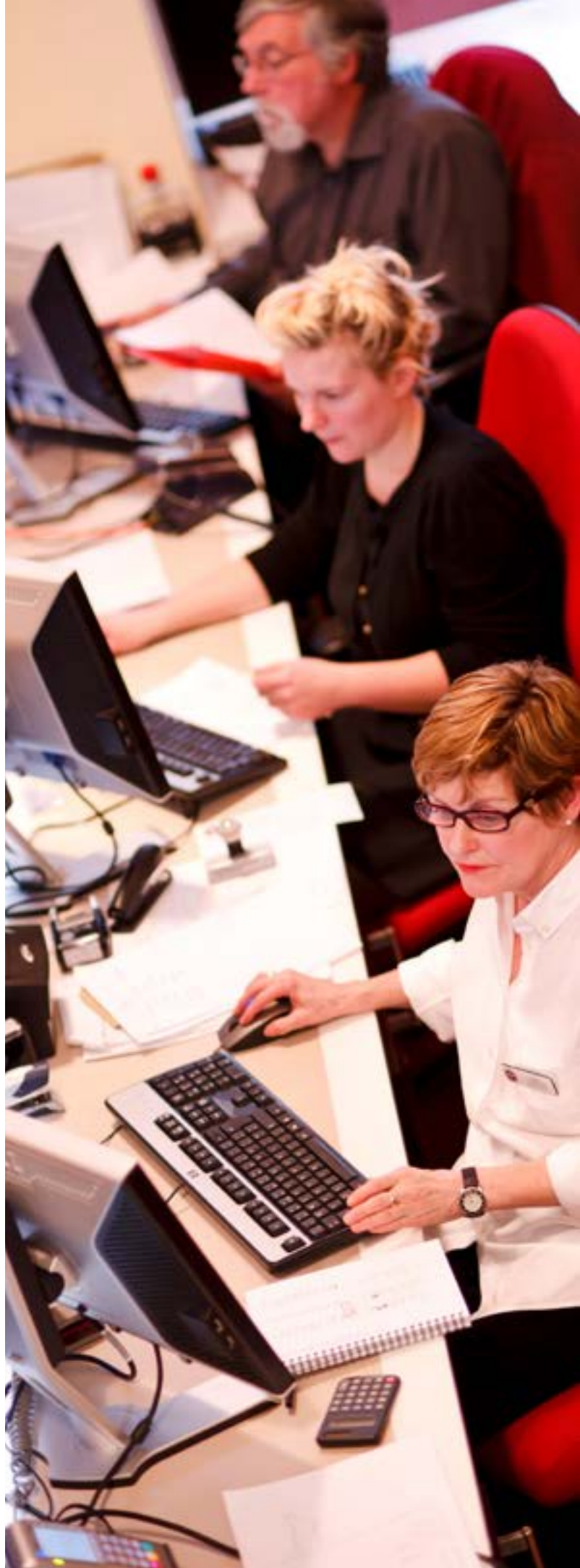
4.3 Delivering support to utilising University data; student engagement for pastoral care, student experience metrics, enhancement themes

The College BI team will work in partnership with central and local services to co-ordinate use and understanding of our institutional data. Common and consistent data definitions are crucial in ensuring that data are interpreted correctly and the College team will ensure co-ordination across the College and its Schools.

We will maximise appropriate and ethical usage of our student data to support students and provide the best possible pastoral care, recognising that sometimes the data we store should not be used. We will promote the use of engagement data to enable student support officers and personal tutors to provide directed support to students who may be experiencing difficulties. As stated previously, we will look to combine these data to the overall benefit of individual students.

This work highlights the need for robust ethical processes and approvals for all projects, not just academic research. We will work with colleagues in central services to ensure that there is a process for ethical approval of non-research projects.

We will support the College in determining and reporting on student experience metrics linked to enhancement themes, working in partnership with central services to provide a data dashboard in this area.



²¹ <https://uoel.sharepoint.com/sites/hss/resources/infosec/>
²² <https://www.ed.ac.uk/records-management/guidance/breach>

4.4 Information security; culture change – recognise importance, research data, administrative data, training and awareness

Alongside the technical controls that are in place and will be developed by the central information security team, we will drive a culture of information security awareness with all of our staff, appropriate to their role.

To achieve this we will ensure that all our services delivered within the College are secure by design and that all staff have undertaken, and are regularly refreshed in, the available data protection and information security awareness training. Uptake of that training will continue to be reported to College Heads of School and Professional Services²¹ for local action. Access to certain systems or data will be dependent on successful completion of these mandatory courses, evaluated by risk to the institution. We will promote good information security practices locally and ensure that induction includes this and online data protection training for all staff.

For research data that is also personal or sensitive in nature, research ethics processes will ensure that appropriate information security measures are in place. The research project data management plan will describe the technical measures required to securely store these data.

In the event of data loss, we will follow standard reporting and escalation of all suspected data breaches in accordance with the requirements of the ICO²².

4.5 Data storage; consolidating any remaining local data stores into a single, secure, resilient physical location that is centrally managed, facilitating a move to mobile, cloud-first storage platform to support the mobile academic and professional.

The ability to easily store and ready access to College data for teaching, research and administration is essential in enabling staff and students. These data should be stored on centralised, managed infrastructure unless there is a specific technical requirement not to do so. Any subject or discipline-specific compute and storage will be located in University datacentres to take advantage of high-speed networking and resilient power.

Data transfer for local analyses will be facilitated through fast data connections that the new University network infrastructure will deliver and we will work in partnership with ISG Communications Infrastructure team to ensure that network connectivity is appropriate for our requirements. We will use central network monitoring tools to proactively monitor, assist with resolution and predict increased demand in our Schools.

Secure mobile access to data will be through the use of OneDrive and our Office 365 tenancy provided by Microsoft and this will become the default storage location for the majority of our data to facilitate mobile, flexible and remote working of our staff.

4.6 Outcome of the Technology Support Review

The Technology Support Review project was initiated in late 2017 as part of the previous information strategy and College plan at the time. We will implement the agreed actions from the review within the period of this strategic plan including a target operating model for technol

vision and set of principles²³ that we will seek to adopt and that guides how our technology support operates within the College. These principles will be reviewed regularly and adapted accordingly but will remain a single set for the College as a whole.

The project defined clear value in having a local resource that complemented but didn't duplicate services provided centrally. It further reinforced our previous strategy of subsidiary; providing services at the level most appropriate for the best user experience, whether that be at individual, subject, School, College or University. This principle is well established but will need continual review.

In line with this, we have established the concept of an innovation pipeline²⁴, whereby local innovation is nurtured and encouraged but designed from the outset to offer the possibility of moving up the pipeline to be a College or University service as appropriate. For all appropriate technology projects, we will seek to undertake a lessons learned exercise on conclusion.

Within this is an overall trajectory of increased professionalisation of the services we offer in Schools and College. We will seek to develop and train those staff, equipping them with the certifications appropriate to their role and defined as best practice for the sector such as ITIL and Prince2/Agile project management. This will require standardisation of processes and procedures in technology teams across the College and with central services with whom we should co-design rather than simply adopt their processes. The massively interdisciplinary, technology-rich and data-led nature of EFI presents great opportunities as well as great challenges for the way we currently provide technology support. The operating model for the College must accommodate and enable this.

We should seek to make the decision making processes around technology adoption or change more transparent and streamlined. This will involve College-level academic and operational committees as well as School technology strategy groups who should be empowered as appropriate to recommend or implement changes. Introduction of change or new systems will reflect business process or culture changes required to ensure successful adoption.

²³ <https://uoel.sharepoint.com/sites/hss/projects/technology-support-review/Project%20outputs/>

²⁴ Examples include; Mac Managed Desktop, Programme Quality System, BI dashboards amongst others.

4.7 Service and project management, business analysis to maximise benefits to end-users

College technology teams will continue to adopt and embed current best practice for project and service management. These will be based around Prince2, Agile and ITIL.

We will develop a clear project prioritisation methodology that ties to School, College and University strategic priorities and that delivers maximum benefit for our staff and students. We will continue to work with and use central project services for management and business analysis but we will also develop our own capabilities embedded in the local technology support teams, following the same standards for consistency. All projects will define benefits and success criteria and will be evaluated against these when complete.

For service management the College will further embed ITIL across all its technology support services and will implement a project to train, define and implement standards co-designed with ISG that are consistent and in line with current best-practice. Work already underway will standardise service catalogues, portfolios and evaluation of satisfaction in both a continuous and summative way.

We will look to extend our capabilities around business analysis to ensure that technology projects identify appropriate benefits to our end-users and that we are able to prioritise those projects which can demonstrate greatest benefits. Where we are unable to demonstrate clear benefits to end-users, projects will not normally proceed unless there is a legal or information security reason to do so.

The College helps inform the University's essential, core or top priority services. These services are regularly reviewed with input from the College via the CIO. Through this process we will look to help define service levels, uptime, outage periods and resources for system maintenance or enhancement.

Teams will use data to inform decisions on services and to adapt the support that is offered to staff, including the provision of resources that enable self-service support. We will work collaboratively on those resources to avoid duplication and inconsistency, seeking to publish them on a common platform.

²⁵ <https://uoesharepoint.com/sites/hss/resources/digital-skills-capabilities/>

²⁶ <https://uoesharepoint.com/sites/hss/resources/digital-skills-capabilities/Digital%20capabilities%20for%20job%20descriptions/>

4.8 Digital skills and capabilities

With technology pervading almost all operations within the University, digital capability of our staff is increasing in priority. The University adoption of more digital ways of working and increased self-service, will depend on the confidence and capabilities of our staff and students.

The College has developed in partnership with ISG a number of resources to support staff development of digital skills and capabilities²⁵. This is a crucial area for the College to allow us to take advantage of new opportunities for digital teaching and research. Further development of teaching staff digital capability will enhance our students experience in their use of learning technologies. In general, our students' expectations for the use of technology, and their experience in their personal lives, is in advance of what we provide within the University and we must support academic and professional services staff in closing that gap.

We will continue to develop our supporting resources in this area and will work with the Institute for Academic Development (IAD) and central HR to embed digital capability wherever possible. Through the Centre for Data, Culture and Society, we will provide opportunities for staff to develop new, specialist and discipline-specific, digital capability not provided centrally.

All staff will be supported and encouraged to consider digital capability as a priority within the life of this strategy. The College will enable this and make it easy for staff to find relevant resources. All line managers are encouraged to discuss digital capability appropriate to the role within annual review and all new job descriptions must include reference to digital capability²⁶



4.9 Internal communications

The College information strategy sits alongside the College internal communications strategy and enables it through appropriate platforms and tools. Key to this is our use of the College intranet as a tool to enable internal dissemination, collaboration and digitalisation of our processes in a secure and scalable manner.

The intranet has existed for some years delivered as part of the previous information strategy. We will continue to enhance the resources available and leverage the functionality and security that SharePoint through Office 365 provides. SharePoint remains the preferred platform and the focus continues to be on enhancing the information we make available and the digital processes we enable within it. Further work will be required to streamline and enable appropriate access to internal information, particularly for staff with multiple roles within the College. Alongside this we recognise the part that the VLE plays in internal student communications as an existing mechanism that our students already engage with regularly. The two complement rather than duplicate.

We will however seek to layer on additional tools where

they add value to the staff and student experience in line with our cloud-first approach where they can help with highlighting news, events and other information provided through the intranet. We should investigate app-based technologies that encourage students in particular to engage digitally with Schools and act upon that information as required.

The College should seek to support the student voice in facilitating student feedback within the programme representation model, enabling students to raise issues with the rep and for reps to report back more easily when issues are resolved. We will work in partnership with the Students' Association to enable this through appropriate digital technologies.

For our projects, we should define a standard approach to communication that utilises the intranet wherever possible and utilises best practice such as the UCISA communications toolkit²⁷.

²⁷

<http://www.ucisa-comms-toolkit.org/>

4.10 External collaborations; platforms that allow secure, scalable collaboration across institutional boundaries

This strategy also supports external collaborations for whom the College and its Schools is the lead; administrative and academic. We will provide standard and, where necessary to support specific requirements, custom platforms to enable external collaboration in line with our cloud-first approach.

Security is a key consideration alongside sustainability of our platforms. SharePoint and OneDrive remains the primary and preferred mechanisms for external sharing and collaboration for this reason. We will work in partnership with technology support functions in our external partner organisations to better support collaborators.

4.11 Enabling infrastructure

Our technology infrastructure enables staff and students to work, study, teach and research. When done well it adds value to the staff and student experience but does so transparently. The College technology infrastructure will be based on central or cloud-based services wherever possible. Where this is not possible, for example to support our digital researchers, we will aim to co-locate our infrastructure in central datacentres in order that end-users of services benefit from power and data resilience as well as increased energy efficiency.

We will continue our cloud-first approach for solutions that we adopt within Schools or in the College and will utilise Azure public cloud for our elastic compute requirements particularly in support of digital research. All cloud services we consume will have an exit strategy built-in such that we can access our data and port to a new provider should it be necessary.

We will further leverage our University Office 365 environment, expanding to take advantage of the new tools and services that Microsoft provide as part of our subscription as well as the enhanced level of security²⁸ it offers over many University-based services.

²⁸ <https://www.microsoft.com/en-us/trustcenter/privacy/privacy-overview>



THE UNIVERSITY *of* EDINBURGH

College of Arts, Humanities and Social Sciences

College of Arts, Humanities and Social Sciences

The University of Edinburgh

55 George Square

Edinburgh

EH8 9JU

www.ed.ac.uk/arts-humanities-soc-sci

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