



## Information Technology Strategy 2019-2022

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## Table of Contents

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	AUDIENCES AND DOCUMENT STRUCTURE.....	1
1.2	COMMUNITY RESPONSE.....	1
1.3	RELATED DOCUMENTS .....	1
<b>2</b>	<b>BUSINESS DRIVERS.....</b>	<b>2</b>
2.1	LEARNING AND TEACHING STRATEGY GOALS .....	2
2.2	STRATEGIC PLAN FOR RESEARCH AND ENTERPRISE PRIORITIES .....	2
2.3	FINANCE STRATEGY GOALS .....	2
2.4	ESTATES STRATEGY .....	2
2.5	PEOPLE STRATEGY .....	2
<b>3</b>	<b>CONTEXT .....</b>	<b>4</b>
3.1	IT DRIVERS .....	4
3.2	IMMEDIATE STRATEGIC IT COMMITMENTS .....	4
3.3	IT TRENDS AND FUTURE IT-FACILITATED OPPORTUNITIES .....	4
<b>4</b>	<b>SERVICE STRATEGY – SERVICES WE WILL PROVIDE .....</b>	<b>6</b>
4.1	EXISTING SERVICES .....	6
4.2	AREAS OF FOCUS AND ASSOCIATED THEMES.....	6
4.3	BETTER INFORMATION.....	7
4.3.1	<i>What we will do</i> .....	7
4.3.2	<i>How we will do it</i> .....	7
4.4	STAFF EFFICIENCIES.....	8
4.4.1	<i>What we will do</i> .....	8
4.4.2	<i>How we will do it</i> .....	8
4.5	FACILITATION OF INNOVATION.....	9
4.5.1	<i>What we will do</i> .....	9
4.5.2	<i>How we will do it</i> .....	9
4.6	IMPROVING STUDENT EXPERIENCE .....	10
4.6.1	<i>What we will do</i> .....	10
4.6.2	<i>How we will do it</i> .....	10
<b>5</b>	<b>SERVICE DESIGN – TOOLS AND PROCESSES REQUIRED .....</b>	<b>11</b>
5.1	PROCESS IMPROVEMENT .....	11
5.2	DESIGN QUALITY AND TIME TO DESIGN.....	11
5.3	UNDERSTANDING THE IMPACT OF CHANGE.....	11
<b>6</b>	<b>SERVICE TRANSITION – APPROACH TO CREATING SERVICES.....</b>	<b>12</b>
6.1	APPLICATION DEVELOPMENT .....	12
6.2	PLATFORM DEVELOPMENT .....	12
6.3	INFRASTRUCTURE .....	12
<b>7</b>	<b>SERVICE DELIVERY – HOW WE PROVIDE SERVICES .....</b>	<b>13</b>
7.1	SUPPORT MODEL.....	13
7.2	SERVICE STABILITY .....	13
<b>8</b>	<b>CONTINUAL SERVICE IMPROVEMENT.....</b>	<b>14</b>
8.1	APPROACH.....	14

# 1 INTRODUCTION

This document describes the University IT Strategy for February 2019 to September 2022.

## 1.1 Audiences and Document Structure

The document attempts to cater for two distinct audiences: senior managers outside of IT and IT teams.

Sections 1, 2 and 3 set the context for the strategy and should be of interest to both audiences.

Section 4 explains the strategic themes that IT will be focusing on over the next few years. This section should be of particular interest to senior managers outside of IT.

Sections 5, 6, 7 and 8 describe the focus that IT teams will take to help deliver the strategy.

## 1.2 Community Response

IT systems, applications and teams play an important role in both the day-to-day running of the University and in many of the initiatives that help staff and students prosper.

The IT strategy attempts to balance the needs of running what we have against the needs of new initiatives.

Over the period of the IT Strategy the University is engaging in an exciting and ambitious portfolio of development. The IT Department will attempt to support all those who need our assistance. It is hoped that during times where particular stress is placed upon IT's resources, the IT Strategy will help senior managers understand where best to focus and prioritise our efforts.

## 1.3 Related Documents

Document Name	Location
University Strategic Framework	<a href="https://cccu.canterbury.ac.uk/strategic-framework/strategic-framework.aspx">https://cccu.canterbury.ac.uk/strategic-framework/strategic-framework.aspx</a>
Learning and Teaching Strategy	<a href="https://canterbury.ac.uk/learning-and-teaching-enhancement/strategies/learning-and-teaching-strategy.aspx">https://canterbury.ac.uk/learning-and-teaching-enhancement/strategies/learning-and-teaching-strategy.aspx</a>
Strategic Plan for Research & Enterprise	<a href="https://cccu.canterbury.ac.uk/strategic-framework/docs/framework-refresh/Strategic-Plan-for-Research-Enterprise-2018-2023-brochure.pdf">https://cccu.canterbury.ac.uk/strategic-framework/docs/framework-refresh/Strategic-Plan-for-Research-Enterprise-2018-2023-brochure.pdf</a>
Finance Strategy	<a href="https://cccu.canterbury.ac.uk/strategic-framework/docs/financial-strategy.docx">https://cccu.canterbury.ac.uk/strategic-framework/docs/financial-strategy.docx</a>
Estates Strategy	<a href="https://cccu.canterbury.ac.uk/strategic-framework/docs/Estate-strategy.pdf">https://cccu.canterbury.ac.uk/strategic-framework/docs/Estate-strategy.pdf</a>
People Strategy	<a href="https://cccu.canterbury.ac.uk/hr-and-od/docs/peoples-strategy.pdf">https://cccu.canterbury.ac.uk/hr-and-od/docs/peoples-strategy.pdf</a>

## **2 BUSINESS DRIVERS**

The University's Strategic Framework for 2015-2022 considers IT to be a theme that cuts across five primary underpinning strategies. The relevant goals, from each of the underpinning strategies, that have helped shape this IT Strategy, are summarised below.

### **2.1 Learning and Teaching Strategy Goals**

1. provide an inclusive learning community
2. produce graduates able and equipped to contribute to local, national and international workplaces
3. enhance academic excellence in learning, teaching and assessment as a partnership between staff and students and recognise the scholarship of learning and teaching as a core foundation for excellence
4. to enable effective learning to take place in a wide variety of physical and virtual spaces supported by up-to-date learning technologies where appropriate
5. improve retention
6. supporting diverse academic delivery models
  - Distance learning
  - Partnerships
  - Work-based (short or fragmented models)

### **2.2 Strategic Plan for Research and Enterprise priorities**

7. develop a sustainable and strategic approach to funding for research and enterprise
8. support, promote and evolve examples of our excellence in research and enterprise
9. develop a research and enterprise ecosystem to support delivery and guide investment
10. provide an integrated development system to support research and enterprise careers
11. build a vibrant and connected learning community
12. translate our research and enterprise to deliver social economic and cultural prosperity

### **2.3 Finance Strategy Goals**

13. to generate a cash surplus
14. to grow and diversify income streams
  - a. Grow student numbers
  - b. Grow international numbers
15. ensure value for money
16. improve recruitment

### **2.4 Estates Strategy**

17. improve space utilisation
18. maximise the use of the estate

### **2.5 People Strategy**

19. develop our approach to flexible working
20. create communities of practice to facilitate learning, solving problems and develop connections, including with communities external to the University
21. enhance the digital and working environments to support collaboration across departments and different teams



### **3 CONTEXT**

#### **3.1 IT Drivers**

The following drivers are internal to IT:

- To help the University as it expands and diversifies, IT must maintain or reduce run-costs so savings can be channelled into “grow” and “transform” activities
- To help the University improve agility when securing new opportunities

#### **3.2 Immediate Strategic IT Commitments**

The following strategic University initiatives will require direct support from IT:

- MOSI – this includes building data interfaces and potentially modifying a large number of other systems to deliver the required data or business process change
- KMMS – working with the University of Kent to implement a new, joint medical school
- EDGE Hub – provide technical expertise to help build and support the University’s engineering initiative
- Estates Master Plan - including Building 2 and Estate consolidation plans.
- Student Digital Experience – working with Student Communication, L&T, PAA and Marketing to improve student digital experience

#### **3.3 IT Trends and Future IT-Facilitated Opportunities**

The following IT trends in higher education will be monitored and regularly assessed to see if their maturity levels are sufficient to justify implementation by the University.

- Learner/Learning Analytics – this is a student analytics capability that aims to help improve student outcomes and student retention
- Artificial Intelligence – possible uses include chat bots, intelligent cataloguing of files and data sets, deriving complex insight from strategic data sets
- Citizen Development – speeding up productivity and innovation in departments outside of IT by procuring platforms that include easy to use development tools and selecting practices and policies to ensure sustainability.
- Internet of Things – the use of autonomous and semi-autonomous sensors and actuators to reduce costs, speed-up services and to provide data to help answer business critical questions is well understood in the transport and manufacturing sector. Adoption in higher education may develop in areas such as building/space management, marketing and student help and guidance.
- Adaptive learning systems – platforms that dynamically adjust the way instructional content is presented to students based on their responses or preferences
- Simulation – conversational platforms, augmented reality, virtual reality and mixed reality may provide opportunities for more natural and immersive ambient experience within the digital arena

- Smart Campus – The collection and distribution of information about building use and the seamless integration of technologies in the environment. For example, digital timetabling and interactive classroom technology.

IT is a quickly evolving domain. Over the lifetime of the IT Strategy many new technologies and approaches may evolve. The IT Department will continually review IT trends and work with University stakeholders to formulate appropriate responses.

## **4 SERVICE STRATEGY – SERVICES WE WILL PROVIDE**

### **4.1 Existing Services**

IT will continue to provide staff and students with core services around:

- Account & IT Security
- Communication and Collaboration
- Core Business Systems
- Data Storage and Backup
- Devices, Printing & Applications
- Network & Connectivity
- Support, Training & Governance
- Teaching and Learning platform support

### **4.2 Areas of Focus and Associated Themes**

The IT service strategy will focus on directly or indirectly improving support for initiatives around:

1. recruitment
2. retention
3. student outcomes

The themes that will help deliver improvements in these three areas are summarised below and covered in more detail in subsequent sections:

- Better information
  - to help improve the University’s ability to make better informed decisions
  - to help tutors and students understand what interventions will improve academic outcomes
- Staff Efficiencies
  - to reduce the support burden on academic and professional services staff freeing them to contribute to delivering performance improvements in higher value activities
- Facilitation of Innovation
  - to make it easier and quicker for “product owners” (e.g. academic leads, marketing, etc.) to innovate
- Improving Student Experience
  - to help give applicants and enrolled students a stress-free engagement with IT services
  - to improve student communication and engagement; to improved digital literacy

In addressing many of these themes, IT will work collaboratively with key stakeholders in areas like Learning and Teaching, Estates and the Library.

## 4.3 Better Information

### 4.3.1 What we will do

The strategy is to:

1. complete the previous data architecture strategy
2. improve business intelligence services
3. introduce a learner/learning analytics solution
4. introduce module-evaluation

### 4.3.2 How we will do it

#### Data Architecture

The strategy will be achieved by:

- Reviewing our data architecture against an appropriate framework<sup>1</sup>, agree what an acceptable level of architecture is with ITSPG, develop a plan to improve
- Continuing to work with key stakeholders to:
  - Consolidate our data integration platform (the ESB)
  - Define master data sources and associated governance
  - Support implementation of data stewardship framework
  - Continue to move focus away from IT delivered reporting
- Using MOSI, in relation to both staff and student data, as the project vehicle for the above

#### Improvements to Analytic and Business Intelligence (BI) Services

Working with the University teams responsible for data analytics and BI, IT will:

- Investigate the suitability of current business intelligence reporting tools in light of developments in machine learning and artificial intelligence
- Investigate the remit of each of the teams involved in analytics and BI, and work with ITSPG to develop an appropriate data architecture
- Investigate our existing Internet-of-Things end points, system data and associated platforms to assess their ability to provide business insight

#### Introduction of Student-Outcome Related Services

Introduce a learning and learner analytics platform that will help:

- Students understand how specific changes to their behaviour could improve their academic outcomes
- Academic staff identify students in need of additional support thereby improving student outcomes
- Academic staff identify students at risk of leaving the University so interventions can be put in place and retention figures improved

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<sup>1</sup> For example, DAMA (<https://dama.org/content/body-knowledge>)

## Introduce Module Evaluation

- Introduce module evaluation software that will help with longitudinal improvements in student outcomes and experience

## **4.4 Staff Efficiencies**

### 4.4.1 What we will do

The strategy is to:

1. Standardise our application and technology offerings around a few platforms rather than adopting a best-of-breed approach and having many application platforms.
2. Look to move commodity service to third party and cloud offering
3. Review and expand our service catalogue
4. Improve the way staff create communities and networks and the way they engage with business processes
5. Introduce flexible working technologies

### 4.4.2 How we will do it

The strategy will be achieved by:

#### Standardise our application and technology

- Working with key stakeholders to ensure the right compromises are made so future solutions allow the University to grow and change easily and are easy to support
- Developing a robust enterprise architecture approach that allows compromises to be identified, understood and mitigated where necessary
- Centre solutions around the following providers/products wherever possible:
  - Tribal
  - Salesforce
  - Microsoft
- Focus on infrastructure solutions that fit with the following technologies:
  - Nutanix
  - Rubrik
  - VMWare
  - Microsoft Azure

#### Move commodity services to Third Parties and the cloud

- Analyse our existing infrastructure to decide what must remain on premise for reasons of latency, security etc.
- Create a value/cost model that will allow a decision to be made about where to host services that do not necessarily need to remain on premise
- Focus on building services in a way that allows them to be ported between platform providers as easily as possible

### Review and expand our Service Catalogue

- Identify/verify existing services, their definitions and their owners
- Classify each service by the value it provides against the cost of providing it; for low value, high cost services either find a third party who can provide the service more cheaply or retire the service
- For remaining services, agree the appropriate level of service with our customers balancing that against the cost; construct a monitoring regime to ensure customer satisfaction and value for money

### Develop Communities and Enhance Business Process Efficiency

- Identify opportunities for improving the business process efficiency through the use of electronic forms and workflow tools
- Investigate the opportunities to improve our collaboration and community-building toolset

### Introduce Flexible Working Technologies

- Move towards providing staff with a single end-user device that is appropriate to their role
- Investigate technologies that help lessen the need for travel (e.g. video conferencing)

## **4.5 Facilitation of Innovation**

### 4.5.1 What we will do

The strategy is to:

1. Provide a new Innovation service that allows both staff (including IT) to rapidly trial technical innovation
2. Build a capability that will engage with and identify student, school or department led innovation

### 4.5.2 How we will do it

The strategy will be achieved by:

#### Platform of Innovation

- Provisioning a technical platform and associated datasets that allow the rapid trial of technical ideas
- Provide mechanisms that allow staff to access IT Services, perhaps following a self-service model
- Provide a set of processes and protocols that explain how successfully trialled ideas are moved to a more stable production environment

#### Innovation Capability

- Upskill IT staff to both operate within the new platform and to provide consultancy about the platform to business users
- Further develop our business relationship capability to identify and engage with centres of innovation

## 4.6 Improving Student Experience

### 4.6.1 What we will do

The strategy is to:

1. Provide University IT-enabled applications and services via any modern device from any networked environment
2. Reduce the number of on-line touch points staff and students have to navigate thereby simplifying their online experience
3. Enhance face-to-face student IT support

### 4.6.2 How we will do it

The strategy will be achieved by:

#### Access to IT Services

- Moving application delivery to streaming or local download services that can be consumed via the web from anywhere that has an appropriate network connection

#### Reduce on-line Touch Points

- Enhance on-line help by working to introduce self-help training platforms (e.g. LinkedIn Learning)
- Simplify the on-line environment for students by consolidating around the virtual learning environment as the launch-pad to digital services
- Develop a coherent approach to digitally enabled workflow management
- Enhance our training services and our associated training material to foster better digital literacy amongst the student body
- Develop on-line community tools

#### Enhance face to face student IT support

- Expanding the IT Hub's opening hours
- Proactively survey students and respond appropriately

## **5 SERVICE DESIGN – TOOLS AND PROCESSES REQUIRED**

### **5.1 Process Improvement**

IT will improve its design processes to ensure there is minimal disruption to the student and staff experience by:

- Looking to introduce business-change control processes (working with relevant business process owners) so the impact of business change can be accessed via Service Design processes (e.g. re-engineering)

### **5.2 Design Quality and Time to Design**

As the University moves into new areas of activity the need to introduce new technologies and practices will increase. The strategy to ensure IT can continue to design the right solutions, quickly, will be to:

- Make greater use short engagements with external consultants
  - IT will look to set up contracts with relevant providers of consultancy services to speed-up access to relevant expertise
- Develop expertise in cloud platforms so solutions can be designed that take advantage of pre-built building-blocks rather than designing new components
  - IT will look to build skills around the Microsoft Azure platform

All services will be designed in a way that adheres to relevant standards and legislation, such as accessibility standards and GDPR.

### **5.3 Understanding the Impact of Change**

Introducing change inevitably comes with the risk of inadvertent disruption to the staff and student experience. To help minimise this risk IT will:

- Build a greater understanding, both within IT and with key stakeholders, of Enterprise Architecture approaches. Such approaches should help the flow of information both within IT and between IT and its stakeholders thereby helping to inform and control the impact of change.

## **6 SERVICE TRANSITION – APPROACH TO CREATING SERVICES**

### **6.1 Application Development**

To improve development times, reliability and to provide solutions that can easily adapt as requirements change, IT will:

1. Adopt modern application development techniques, choosing tools and techniques that best suit the problem (e.g. start hosting business logic in the application layer rather than the database layer)
2. Modernise the way we pass data between our applications and use approaches that aid organisational agility (e.g. distributing logic through process choreography)
3. Favour commercial off-the-shelf applications to in-house written applications
4. Provide a faster and more flexible application development service by adopting industry best-practice development methodologies

### **6.2 Platform Development**

To improve delivery times and reduce support overheads IT will:

5. Move away from using on-premise application containers (such as web servers and database server applications) towards favouring the use of equivalent “serverless” services in the cloud

### **6.3 Infrastructure**

To reduce the full economic cost of infrastructure IT will:

6. Minimise the amount of commodity infrastructure that IT physically own and support
7. Build infrastructure in an easily scalable way (thereby making infrastructure financial planning simpler) moving towards converged infrastructure

## **7 SERVICE DELIVERY – HOW WE PROVIDE SERVICES**

### **7.1 Support Model**

The strategy for IT Support is to:

- Further consolidate on the good practices introduced via the SDI accreditation process
- Broaden our IT operational monitoring to include application and digital experience
- Expand the communication of the services we offer and their various characteristics
- Review boundaries between our services and other departments and schools to identify any inefficient practices or service gaps
- Clarify and formalise our relationship with teams from other departments that support applications

### **7.2 Service Stability**

IT will manage services against agreed service targets that will be documented within the IT Service Catalogue. The following services, or components of a service, will be addressed first:

- The student portal
- Exam release
- Identity management including password reset
- Staff communication and collaboration (email lists and file shares)

## **8 CONTINUAL SERVICE IMPROVEMENT**

### **8.1 Approach**

IT will continually review and improve its service offerings by:

- Taking part in, and acting on the results from, industry benchmarking surveys, such as the JISC Student and Staff Digital Tracker
- Continuing to engage with the Student Union in both formal committees (ITSPG, AGs) and through direct discussions to ensure the student-voice is heard and acted upon
- Using student and staff focus groups in projects to ensure that services are designed and delivered to support their prioritised requirements
- Using annual external student surveys – NSS, PTES, PRES
- Capturing feedback, via the IT Service Desk, as part of the standard incident management process e.g. email and voice survey at call closure
- Formally reporting on our delivery of services to FARC and the Professional Services Quality Assurance committees
- Running annual customer satisfaction survey
- Running internal surveys, e.g. the IT Staff Survey

## Change History

<b>Date</b>	<b>Version</b>	<b>Change(s)</b>
05-Oct-2018	0.1	First draft
17-Oct-2018	0.2	Updated following feedback and input from Stuart Johnston
28-Nov-2018	0.3	Updated to new date range and minor updates. Some remarks for others to consider.
18-Jan-2019	0.4	Changed the date the strategy runs to
24-Jan-2019	0.5	Updated following IT Management Team comments and a review by Gartner
31-Jan-2019	1.0	Release version for ITSPG
01-Mar-2019	1.1	Updated following feedback from ITSPG
09-May-2019	1.2	Updated following further feedback from ITSPG
14-June-2019	1.3	Updated following feedback from SMT and FARC