University of York

Information Needs of the World Class University

Information Strategy & Implementation Plan

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References

A. ISG. Information Needs for a World Class University. March 2006.

Stephen Town (Director of the Library & Archives)
Mike Jinks (Director of the Computing Service)
Trevor Sheldon (DVC)
Executive Summary and Status

Introduction and background

This document provides a draft new information strategy based on the work of the Information Needs of the World Class University Working Group. It contains a proposed implementation plan which will provide a framework for activity and investment in information systems and services over the next five years (2008-2013).

Summary

Strategic programmes are required in five broad areas each with a portfolio of projects which individually will result in services, processes or policies. If all are achieved successfully then this should provide an information environment which matches that of a World Class University.

They are:

1. Information and communication systems
2. Portals and interface systems
3. Content & knowledge assets
4. IT Infrastructure
5. Integration policies and processes

Current status

The Strategy was discussed at SMG on 15 July 2008. This document is a second draft for endorsement by SMG and for use in implementation.

Financial position

A separate costing document for the strategy is in preparation. Significant capital sums have already been allocated to some action lines, and others are being addressed by other funding streams. Many existing IT systems and services exist in addition to those addressed by the strategy, and it is not the intent at this point to list or to cost replacement for these.

Governance and implementation

The strategy has been developed through extensive consultation with the whole university community, the various relevant committees and the Information Strategy Group (ISG). ISG will now act as the Board for the strategy, and SIPIG will monitor the practical aspects of implementation and integration with other initiatives. An Information Strategy Executive Committee has been formed to execute the strategy and provide programme leadership, with membership from Computing Services, Library & Archives and other service areas.
1. Introduction & Context

1.1 This document provides a new information strategy for the University of York based on the work of the Information Needs of the World Class University (INWCU) Working Group (Reference A). It contains a proposed implementation plan which will provide a framework for activity and investment in information systems and services over the next five years.

The University Corporate Plan: knowledge and information

1.2 Knowledge is at the heart of the University’s vision statement. Information systems and services which manage knowledge assets will therefore be critical to achieving the aim of being a world-leading institution.

1.3 Information systems and services must support, encourage and enhance the achievement of the objectives of international quality, diversity, collegiality and interdisciplinarity, and sustainability. In particular information is one of the university’s primary non-staff materials, and taking advantage of the opportunities that developing information systems offer is a key strategic element of promoting academic and operational excellence.

1.4 Effective information systems are the cornerstone of most successful modern organisations. We require systems and tools for accessing, collecting, sharing, analysing, synthesising, critically appraising, and adding value to existing information, as well as for managing the institution, and delivering information to support the core processes of teaching, learning, creating new knowledge and knowledge transfer. Information and communication systems also support the University’s global brand and reputation.

1.5 The information dimension is therefore critical to the success of the University’s overall plan. This will require step changes in commitment, funding and organisation to attain world class standards.
2. Strategic analysis, choice and conclusions

Strategic analysis

2.1 The method of development of the strategy and the INWCU report document (Reference B) involved broad consultation within and beyond the University; analysis of the external environment as well as internal organisational strengths and weaknesses; some comparisons with competing institutions; and expert comment from our own technical experts as well as external agencies. An edited summary from the previous report is provided below.

Main drivers

2.2 The main broad drivers for the development of a new information strategy for the University were considered to be:

Changes in education:

a. The key trend is the globalisation of HE. This defines the competitive environment and demands information and communication systems which can both function effectively in this context and also help attract staff, students and new business. Because universities are powerhouses of the knowledge economy, there are growing opportunities for those with the right products, appropriately presented.

b. Changing education in terms of methods of delivery, working and interaction.

Changes in technology:

c. The digitisation of work and information. There continues to be a massive increase in data and information being produced (in all relevant areas: academic, knowledge, management, and administrative) associated with a need for staff and students to access, store, manipulate and disseminate new information easily and to collaborate with low transactions costs, irrespective of location.

d. The changing knowledge and information management context.

Changes in people:

e. Changing and more diverse people in use of technology, their requirements and expectations from education, and their requirements of technology used within education.

The main local drivers arising from the University of York’s chosen strategy and Corporate Plan are:

f. Growth, and the associated need to ensure during the process, the maintenance of quality, existing ethos and culture, and effective management systems

g. The need for agility, flexibility and responsiveness to needs

h. The requirement to form effective partnerships

i. The specific objectives of the new Corporate Plan, discussed above in the introduction
Strengths, weaknesses and the competition

2.3 Our development of information systems and services has been judicious and cautious, and generally successful, but slow in development and in responding to need. Investment has not always been sufficient to satisfy user requirements. There has also been little flexibility or resource to respond to additional needs; developments have rarely been innovative, and these have often lagged behind the sector leaders.

2.4 Our web presence is adrift of the standards set by some competitors. Work is ongoing to integrate data from different business systems but there is a backlog of developments to be undertaken. Our approach to collective learning systems (through the VLE) has been innovative and stimulating, and there is enthusiasm for further exploitation. Our library and information resources have gaps in comparison to world class provision, and the learning spaces available are falling behind those of competitors. Demand for the digitisation of materials outstrips our capacity to deliver.

2.6 A pleasing 91% of undergraduate students have reported their satisfaction with access to general IT resources in the National Student Survey. However, our IT infrastructure and services, though robust and reliable, does not provide all the facilities expected in a £200M turnover organisation.

2.7 It is clear that competitor and comparator institutions have been making considerable and significant investment in this area. Many of these developments have required a step change in the level of investment in the information systems and services area, and a new approach to information management.

Information Need

2.8 The report was able to identify a set of needs relating to various groups within or associated with the University: students; academic teachers and researchers; staff; business partners; alumni and visitors.

2.9 Students want high quality, stimulating teaching and learning. They continue to value contact with academic staff, but they also want to communicate and work in teams with their peers in the virtual world. Many now use social networking tools before coming to University; they also want to use their own consumer technologies and have good simple access to services and systems from a variety of locations. They still desire a good library service; print resources are still very much alive in many subject areas. Students want real space for group work and social interaction, and different levels of training in information literacy appropriate to their background, but all need new skills to critically appraise and make best use of the specialised resources and services available within the University.

2.10 Students want insightful support and guidance during their studies. They may want to engage with the University throughout their subsequent career, and as alumni to use communication and social networking services to keep in touch. The University will need to maintain information on alumni and their achievements and interests.
2.11 Research varies between disciplines, but much requires more contact and simpler communication with other researchers. Large volumes of data storage and high performance computing are required; improved traditional research collections available via the Library remain a priority. Increasingly resources are sought in digital form available to the desktop instantly on demand.

2.12 Many researchers want easy access to and communication with colleagues for collaborative or inter-disciplinary research. Specific new methods sought include simple videoconferencing, Web 2.0 capabilities, and tools for more effective management of research projects and its outputs. Accessible data storage and curation will need to be developed and offered locally. Routes for dissemination of outputs via the Web are required.

2.12 Teaching is becoming more demanding. Virtual learning environments offer a means of enhancing teaching and learning, but require further investment. Systems are required for recording and delivering teaching. These new methods often require appropriate physical learning spaces and infrastructure. Use of new technology for teaching and learning requires deeper pedagogic understanding, and teaching staff require education and training as well as more basic support and instruction. The Library needs to be active in embedding resources in all formats directly into online teaching materials, and supporting a range of repositories of different media.

2.14 Staff want to contribute and input data into systems in a simple way, and need to be able to combine reliable data from these. They want to be able to communicate with others inside and outside the University without unnecessary barriers or complexity. Clear policies and methods for documents and records management are required, and collaborative tools are becoming essential for both specific project work and general interaction. Staff want to be able to use a variety of mobile and portable devices. All require training and support to make best use of the systems provided.

2.15 Businesses and other partners seek the ability to work alongside the University. The web presence should have detailed information on the subject matter expertise of academic staff. Partners, whether located on site or not, may wish to buy in to University information systems and services in a flexible and tailored way, and this will help to encourage business and community links. The University needs to provide a good service for conference, short course, and CPD visitors in a virtual as well as a physical sense.

Findings

2.16 The net result of this process of analysis was to define a set of forty-four lines of action to meet the information needs of the University of York as a world class University. These ranged from highly specific developments or improvements through to less well-defined, aspirational statements of desire in areas of growing importance.
Consultation

2.17 The report was offered to the University community for endorsement, comment and prioritisation through a web-based survey instrument. Thirty-eight specific developments were included in the consultation process, and respondents were asked to rank their highest priorities.

2.18 A simple scoring method was used to create an overall ranking, and this is provided overleaf. Information content elements were the highest ranked, followed by some administrative enhancements. Infrastructure developments were not generally highly ranked, but comments from the Infrastructure Forum helped balance these requirements against those more popular with users, to whom the underlying technologies may be invisible. All items were supported by at least one respondent.

2.19 About eighteen pages of comments were also received, often with detailed suggestions for improvements. As a result a number of specific proposals were added to the list of developments.

2.20 The consultation thus provided overall endorsement of the report and its recommendations, with a helpful indication of overall priorities and additional suggestions (Reference C). The comment from Gartner Inc (a world leading IT research and advisory company) that the document was in the top quartile of what they receive from business and HE internationally reflected credit on the University’s Information Needs process and outputs to that point.

Conclusions

2.21 The strategy process has generated some clear lines of action based on information needs, and these have all received support and refinement in the consultation process. In order to create an implementation plan all the proposals have been regrouped within a set of five programmes containing similar or related developments. Each programme suggests a portfolio of projects, which individually will result in services, processes or policies. These are laid out in a roadmap at the end of the document. If all are achieved successfully then this should provide an information environment which matches that of a World Class University.
## Consultation scores and rankings

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Score</th>
<th>Question</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>198</td>
<td>A1</td>
<td>World Class standards of information</td>
</tr>
<tr>
<td>2</td>
<td>117</td>
<td>A2</td>
<td>Repositories and processes for the collection of academic content</td>
</tr>
<tr>
<td>3</td>
<td>83</td>
<td>B3</td>
<td>A records management system</td>
</tr>
<tr>
<td>4</td>
<td>83</td>
<td>A12</td>
<td>A virtual library platform</td>
</tr>
<tr>
<td>5</td>
<td>73</td>
<td>B2</td>
<td>The capability of combining data</td>
</tr>
<tr>
<td>6</td>
<td>61</td>
<td>A13</td>
<td>Learning spaces</td>
</tr>
<tr>
<td>7</td>
<td>60</td>
<td>A8</td>
<td>A virtual research environment</td>
</tr>
<tr>
<td>8</td>
<td>57</td>
<td>B1</td>
<td>A staff portal</td>
</tr>
<tr>
<td>9</td>
<td>57</td>
<td>C4</td>
<td>Interoperability of all systems</td>
</tr>
<tr>
<td>10</td>
<td>55</td>
<td>C13</td>
<td>A University wide approach to information management</td>
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<tr>
<td>11</td>
<td>53</td>
<td>C6</td>
<td>Information literacy provision for all levels and user groups</td>
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<tr>
<td>12</td>
<td>51</td>
<td>A6</td>
<td>More effective Library communication systems and processes with user groups</td>
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<tr>
<td>13</td>
<td>49</td>
<td>A10</td>
<td>Full lifecycle approach to student data gathering</td>
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<td>14</td>
<td>44</td>
<td>A3</td>
<td>Further development of the virtual learning environment</td>
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<tr>
<td>15</td>
<td>40</td>
<td>C8</td>
<td>Personal computing, communication and organisation systems</td>
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<td>16</td>
<td>40</td>
<td>C2</td>
<td>Adoption of de facto standards</td>
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<td>A14</td>
<td>High performance computing and large scale data storage capabilities</td>
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<td>C10</td>
<td>Home working</td>
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<td>19</td>
<td>34</td>
<td>A9</td>
<td>A range of Web 2.0 capabilities</td>
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<td>20</td>
<td>32</td>
<td>A5</td>
<td>Digitisation services for local resources</td>
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<tr>
<td>21</td>
<td>31</td>
<td>C3</td>
<td>The responsiveness, capacity and ability to integrate new demands</td>
</tr>
<tr>
<td>22</td>
<td>30</td>
<td>A4</td>
<td>Digital information resources for purchase</td>
</tr>
<tr>
<td>23</td>
<td>28</td>
<td>A11</td>
<td>An online student support service</td>
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<td>24</td>
<td>27</td>
<td>A15</td>
<td>A research management system</td>
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<tr>
<td>25</td>
<td>25</td>
<td>C16</td>
<td>A single identity management system for access</td>
</tr>
<tr>
<td>26</td>
<td>23</td>
<td>C11</td>
<td>Web site development</td>
</tr>
<tr>
<td>27</td>
<td>19</td>
<td>C7</td>
<td>Videoconferencing and virtual networking capacity</td>
</tr>
<tr>
<td>28</td>
<td>19</td>
<td>C5</td>
<td>Discovery tools for the complete range of resources</td>
</tr>
<tr>
<td>29</td>
<td>18</td>
<td>C1</td>
<td>The capability to manage the full range of modern media</td>
</tr>
<tr>
<td>30</td>
<td>17</td>
<td>C15</td>
<td>A single common pervasive network</td>
</tr>
<tr>
<td>31</td>
<td>17</td>
<td>A7</td>
<td>A student portal</td>
</tr>
<tr>
<td>32</td>
<td>17</td>
<td>C9</td>
<td>Portable and remote devices</td>
</tr>
<tr>
<td>33</td>
<td>17</td>
<td>C14</td>
<td>Dedicated project management capability</td>
</tr>
<tr>
<td>34</td>
<td>13</td>
<td>C17</td>
<td>Capability to create additional bespoke systems and services</td>
</tr>
<tr>
<td>35</td>
<td>13</td>
<td>C12</td>
<td>A customer relationship management system</td>
</tr>
<tr>
<td>36</td>
<td>10</td>
<td>B4</td>
<td>An offering of information systems and services tailored for business partners</td>
</tr>
<tr>
<td>37</td>
<td>10</td>
<td>C19</td>
<td>A 'sandbox'</td>
</tr>
<tr>
<td>38</td>
<td>3</td>
<td>C18</td>
<td>A single asset management system</td>
</tr>
</tbody>
</table>

2.22 Explanatory notes for these terms are provided in the glossary at Appendix 1.
3. **Vision, benefits and principles**

3.1 The implementation plan should proceed with the following guiding elements in mind. Detailed plans should retain a sense of progress towards the overall vision, have success measures which relate to the broader aim; and be informed throughout by the statements of principle.

*The Vision*

3.2 The Vision for Information was briefly expressed in the INWCU report as follows:

“The overall aim of the information systems and services in the University of York is to create an information environment that supports, facilitates and enhances the teaching, research, business and community activities of a world class University.”

*Benefits and measurement*

3.3 Information systems and services in this World Class University should help to:

1. Attract and retain the best staff, students, businesses and other partners
2. Permit and encourage students, staff and partners to perform at the highest level possible
3. Permit and encourage interdisciplinary working
4. Support and enhance the University’s internationalisation agenda
5. Support and be accessible to a diverse range of students, staff and partners
6. Assist in encouraging innovation, agility and responsiveness to stakeholder needs
7. Enable the University to be a good partner
8. Promote the University’s brand positively and consistently, both externally and internally
9. Enhance the staff and student experience by delivering content and services in a professional, accessible and engaging way
10. Develop the capabilities of individuals
11. Achieve business processes and service standards, both internal and commercial, which are competitive with other World Class institutions
12. Provide a return on the investment made in them

3.4 These will be used to define more precise measures of success for both the resulting systems and services and the strategy overall.
Principles

3.5 Developments in information systems and services should:

1. Meet users’ expectations
2. Allow work at high levels of teaching, research and administration
3. Provide appropriate functionality with the least extra work to access and use
4. Be available when and where needed
5. Facilitate collaboration
6. Lower transaction costs
7. Reduce complexity
8. Be stable products
9. Use the ingenuity of our staff to optimise performance
10. Be appropriately supported and sustainable
11. Align with University strategy and plans
12. Be owned by those with responsibility for service performance

3.6 Additional technical principles for data and infrastructure architecture will also be required for implementation.

3.7 The strategy seeks innovation in ways of working which fit the University of York’s distinctive ethos and culture of community, collaboration and consultation, and which will help preserve these through a period of growth in scale and quality. It is recognised that this will require information systems and services to reflect the broader need for increased agility and flexibility.

3.8 The strategy therefore will need to provide for:

1. Core reliable systems and services for the whole University
2. Systems for departments which allow for experimentation and development
3. New and innovative approaches as needs arise
4. **Implementation plan**

*Governance and management*

4.1 A governance and leadership framework needs to be defined to provide the structure for managing progress towards the vision. Much of this can be based on existing structures and agencies within the University which have developed expertise in this area, for example, SIPIG.

4.2 There will be choices to make in the prioritisation of the developments proposed within the various strategic programmes identified below. Progress will need to be made across all the programmes, but the balance of resource commitment will be monitored and guided by the University’s Information Strategy Group as the sponsoring agency for the Information strategy.

*Strategic Programmes*

4.3 The Key Strategic programmes required are:

1. Information and communication systems
2. Portals and interface systems
3. Content & knowledge assets
4. IT Infrastructure
5. Integration policies and processes

4.4 In addition, attention needs to given to a set of enabling activities which will support the achievement of these core programmes:

6. Staff capability and capacity
7. Stakeholder involvement & governance
8. Quality & Project Management
9. Resourcing
10. Standards & legislative requirements
11. Security and business continuity requirements

4.5 The key programmes are elaborated further in the roadmap below.

*Capital Budget*

4.6 In order to kick start the implementation of the information strategy, an allocation of £1.5m was included in the 2008/09 capital budget informed by a paper developed from the early results of the consultation (Reference D).

4.7 Clearly not all developments can be addressed through capital allocation. A number of projects are already being taken forward under other funding mechanisms, and these will be identified in the costing chart.
Implementation Plan

4.8 The core programmes bring together potentially related technologies or activities. In some cases (content; infrastructure) these relate mainly to an existing department provider (Library & Archives; Computing Service) with input from stakeholders. The others cover a number of service providers each with their own priorities, but there may be synergistic benefits to be gained from bringing these developments within a coherent programme. This approach also begins to define a perhaps more coherent enterprise information architecture.

4.9 It is proposed that each programme has a Programme Manager, and an identified Steering Group. A project manager will be required for each individual project, and a development team may also need to be formed to deliver the required system, product, service or policy. Candidates for all of these roles may be found within existing structures, although some projects will require dedicated project management, and others may require capabilities which the university does not currently possess.

4.10 The roadmap which follows defines the new elements of the Information Strategy.
5. **Programmes Roadmap**

5.1 The roadmap provides an outline plan for achieving the strategy through a portfolio of similar or related projects.

5.2 The needs expressed in the INWCU report have been used to create vision or outcome statements within each programme. This approach seeks to encourage an implementation based on these vision and outcome statements, rather than defining specific outputs or specifications. Many projects will require scoping studies before these can be set.

5.3 Numbers in brackets after roadmap projects refer to the consultation ranking achieved by each line of action. The detailed implementation plan will be summarised in a Progress Chart. Suggested funding requirements will be in a Costing Chart. These will also provide a framework for allocating responsibility for carrying forward programmes, and for describing progress. A suggested prioritisation will also be included based partly on the consultation but moderated to reflect a balanced spread of improvements, ensuring that underlying technology and infrastructure keep pace with other systems and services initiatives. Detailed prioritisation will be undertaken by the sponsoring and steering groups.

5.4 In the interests of brevity the projects are not fully defined or explained within the roadmap. An alphabetic glossary is provided as an Appendix to assist understanding where required.
A. Information and Communication Systems

Vision statement:

A range of new or enhanced information and communication systems to improve the conduct of teaching and research, the management of the University, and relationships with partners.

Outcomes:

1. Clear policies and systems for records management
2. Innovative technologies and methods for the conduct of research and teaching
3. Communication and collaboration for research with others inside or outside the University without barriers or complexity
4. The ability to deliver teaching more flexibly
5. Online services and tools for research bidding and management
6. Seamless interaction with business partners
7. Information provider of choice to business partners
8. A single source of reliable shared data on customers, alumni and supporters
9. Support for the effective and efficient administration of departments and of the University

Portfolios of projects:

1. A records management system (3)
2. A virtual research environment (7)
3. VLE development (14)
4. Web 2.0 capability (19)
5. A research management system (24)
   a. A research information system
6. Customer relationship management system (35)
   a. Alumni services
7. An offering for business partners (36)
8. Administrative and academic service systems development
B. Portals & Access Systems

Vision statement:

Single engaging access points to the range of systems and services which encourage use, add value, and permit personalisation

Outcomes:

1. Users choosing our entry points rather than others
2. Interfaces which attract new students, staff and partners
3. The ability to interact with services and do business virtually
4. Services presented collectively
5. The ability to combine data and information usefully from different sources
6. Searching and finding tools across the complete range of information resources

Portfolio of projects:

1. Virtual Library platform (4)
2. Staff portal (8)
   a. Combining data capability (5)
3. Student portal (31)
   a. Online student support service (23)
4. Web site development (26)
   a. e-commerce capability
   b. e-procurement
   c. Multimedia (video and podcasting)
5. Discovery tools (28)
C. Content and knowledge assets

Vision statement:

The right information content and systems accessible and available in the right format to support teaching, research and other activities

Outcomes:

1. An array of information resources which matches requirements and competitors
2. Better availability of core material for teaching
3. The capability to create and build digital special collections as required
4. An increasing volume of digital information for teaching, research and administration
5. The ability to offer, manipulate, store and preserve media in all relevant formats
6. The capability to embed the right content into teaching programmes
7. Users and stakeholders engaged with helping select what is required
8. Effective collection, management and distribution of the University’s knowledge assets

Portfolios of projects:

1. World class information for teaching and research (1)
   a. Journals Backfiles
   b. Key Texts
2. Academic repositories (2)
3. Digital resources (in-house capability) (20)
4. Digital resources (purchased) (22)
5. Modern media capability (29)
6. Content embedding into learning packages (40)
D. IT Infrastructure

Vision statement:

A solid core of flexible, reliable and sustainable systems with the capability to respond quickly to new demands and to support experiments at the margins.

Outcomes:

1. Effective learning environments for all pedagogic approaches
2. Simple, reliable personal computing
3. The ability to work when and where desired
4. The capability to undertake research requiring large scale computing resources
5. A space for experiment and innovation
6. The capability to provide tailored developments for departments
7. A single pervasive network with a range of network-based services
8. Single sign-on to the range of information systems and services
9. All IT assets tracked, managed and serviced
10. A service sourcing approach to optimise the benefits of internal development, standard applications packages, shared services, and provision by external agencies

Portfolio of projects:

1. Learning Spaces (6)
2. Personal computing & communications (15)
   a. Home working (18)
   b. Videoconferencing (27)
   c. Portable & remote devices (32)
3. High performance computing (17)
4. Large scale storage (17)
5. New demand capability (21)
   a. Bespoke systems (34)
   b. Sandbox (37, 39)
6. Network development
   a. Single common network (30)
   b. Network management
   c. Resilience
   d. Asset management (38)
7. Service sourcing policy
8. Identity management (25)
9. Collaborative tools
   a. Email and Calendaring (Cloud Computing)
   b. Document sharing
E. Integration Processes & Policies

Vision statement:

A set of policies and new processes to enhance understanding and use of information across the University.

Outcomes:

1. A more joined up approach to information systems and services
2. Systems which work together
3. Enhanced understanding so the community is capable of making the best use of information
4. Better appreciation of information ownership, licensing and legal aspects
5. Appreciation of each individual’s role and responsibilities in information chains and processes
6. Project management capability and capacity to support new developments
7. Reduction of fragmentation of student-related information
8. Improved communication between information system and service providers and users

Portfolios of policies:

1. Integrated information management (10)
2. Interoperability (9)
3. Information literacy (11)
4. Ownership and IPR (41-43)
5. Standards (16)

Portfolio of process design:

6. Project management capacity and capability (33)
7. Full lifecycle approach to student data gathering (13)
8. User & stakeholder communication with services (12)
## Appendix: Glossary

<table>
<thead>
<tr>
<th>Project No</th>
<th>Alphabetic Title (expanded)</th>
<th>Explanatory notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>Academic repositories and processes for the collection of academic content</td>
<td>Digital collections of special or local resources for teaching and/or research.</td>
</tr>
<tr>
<td>D6d</td>
<td>Asset management system</td>
<td>For device management including software delivery across the University.</td>
</tr>
<tr>
<td>D5a</td>
<td>Bespoke systems and services: the capability to create tailored systems for departments</td>
<td>For specific individual departmental requirements.</td>
</tr>
<tr>
<td>B2a</td>
<td>Combining data capability</td>
<td>To access and combine information simply and meaningfully from the range of administrative systems.</td>
</tr>
<tr>
<td>C6</td>
<td>Content embedding into learning packages</td>
<td>Developing the capability and processes to deliver content into learning packages or other new methods of T&amp;L.</td>
</tr>
<tr>
<td>A6</td>
<td>Customer relationship management system (CRM)</td>
<td>Including alumni services, to increase the success of reputation and brand. Also including e-commerce capability.</td>
</tr>
<tr>
<td>C4</td>
<td>Digital information resources for purchase</td>
<td>To increase digital library content by licence or purchase.</td>
</tr>
<tr>
<td>C3</td>
<td>Digitisation services for local resources</td>
<td>To increase digital library content by local in-house or outsourced conversion.</td>
</tr>
<tr>
<td>B5</td>
<td>Discovery tools for the complete range of resources</td>
<td>Searching and finding tools to locate information across all resources, databases and collections</td>
</tr>
<tr>
<td>E7</td>
<td>Full lifecycle approach to student data gathering</td>
<td>A coherent approach to collecting and storing student data, from application to alumnus including assessments.</td>
</tr>
<tr>
<td>D3</td>
<td>High performance computing</td>
<td>Computing power for high demand applications and processes.</td>
</tr>
<tr>
<td>D2a</td>
<td>Home working</td>
<td>Ability, equipment and infrastructure to work from home.</td>
</tr>
<tr>
<td>D8</td>
<td>Identity management system for access</td>
<td>To simplify access to the range of information systems and services through single sign-on.</td>
</tr>
<tr>
<td>E3</td>
<td>Information literacy provision for all levels and user groups</td>
<td>A programme to create competent users and develop effective use of all systems and services.</td>
</tr>
<tr>
<td>E1</td>
<td>Integrated information management: a University wide approach</td>
<td>For example, more joined up working between library, computing and web services.</td>
</tr>
<tr>
<td>E2</td>
<td>Interoperability of all systems</td>
<td>Systems that work together easily.</td>
</tr>
<tr>
<td>D4</td>
<td>Large scale data storage</td>
<td>Additional storage of all types to meet growing demands</td>
</tr>
<tr>
<td>D1</td>
<td>Learning spaces</td>
<td>To meet any type of educational methods in use eg group study, flexible space, technology rich space.</td>
</tr>
<tr>
<td>C5</td>
<td>Modern media: the capability to manage the full range of modern media (inc multimedia)</td>
<td>Ability to handle, store and preserve audiovisual, tape, disk, film and other media resources.</td>
</tr>
<tr>
<td>D5</td>
<td>New demands: the responsiveness, capacity and ability to integrate new services</td>
<td>A resourced capability to guarantee meeting innovative requirements.</td>
</tr>
<tr>
<td>A7</td>
<td>Offering of information systems and services tailored for business partners</td>
<td>For example, computing, communication and library and information services.</td>
</tr>
<tr>
<td>B3a</td>
<td>Online student support service</td>
<td>Bringing together all support services, and offering online booking and services</td>
</tr>
<tr>
<td>E4</td>
<td>Ownership and IPR</td>
<td>Policies to clarify information ownership and ensure legal, security and other requirements are met, including IPR.</td>
</tr>
<tr>
<td>Project No</td>
<td>Alphabetic Title (expanded)</td>
<td>Explanatory notes</td>
</tr>
<tr>
<td>------------</td>
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<td>-------------------</td>
</tr>
<tr>
<td>D7</td>
<td>Service sourcing policy</td>
<td>Consideration of outsourcing areas of infrastructure service provision eg via Google Apps; Microsoft live@edu etc</td>
</tr>
<tr>
<td>D2</td>
<td>Personal computing, communication and organisation systems</td>
<td>An excellent quality of desktop provision.</td>
</tr>
<tr>
<td>D2c</td>
<td>Portable and remote devices</td>
<td>Ability and equipment to work and communicate on the move and at distance.</td>
</tr>
<tr>
<td>E6</td>
<td>Project management capability: a dedicated resource pool</td>
<td>To enhance collaboration and project delivery across services and departments using a standard approach</td>
</tr>
<tr>
<td>A1</td>
<td>Records management system</td>
<td>Processes for organising, retrieving, storing and archiving departmental and other information (eg via an EDRMS)</td>
</tr>
<tr>
<td>A5</td>
<td>Research management system</td>
<td>To assist bidding, project management, and financial control of research</td>
</tr>
<tr>
<td>D6c</td>
<td>Resilience</td>
<td>To ensure the network operates in all parts efficiently and effectively.</td>
</tr>
<tr>
<td>D5b</td>
<td>Sandbox</td>
<td>A capability to provide opportunity and encouragement for experiment, development and innovation</td>
</tr>
<tr>
<td>D6a</td>
<td>Single common pervasive network</td>
<td>To include all University departments and associated facilities.</td>
</tr>
<tr>
<td>B2</td>
<td>Staff portal</td>
<td>For organising, managing and performing work tasks, with tools for fostering community</td>
</tr>
<tr>
<td>E5</td>
<td>Standards: adoption of de facto standards</td>
<td>Common software and systems to enhance inter-working across and outside the University.</td>
</tr>
<tr>
<td>B3</td>
<td>Student portal</td>
<td>For managing students' personal learning, development and information needs.</td>
</tr>
<tr>
<td>E8</td>
<td>User &amp; stakeholder communication systems and processes</td>
<td>Methods for ensuring the library and others services communicate effectively with users.</td>
</tr>
<tr>
<td>D2b</td>
<td>Videoconferencing and virtual networking capability</td>
<td>For on and off-site communication.</td>
</tr>
<tr>
<td>B1</td>
<td>Virtual library platform</td>
<td>Providing single coherent access to all library resources and services.</td>
</tr>
<tr>
<td>A2</td>
<td>Virtual research environment (VRE)</td>
<td>A framework of online resources to support research tasks and processes, including collaboration capability.</td>
</tr>
<tr>
<td>A3</td>
<td>VLE development: further development of the virtual learning environment</td>
<td>eg collaborative tools, the ability to view captured lectures, e-assessment.</td>
</tr>
<tr>
<td>A4</td>
<td>Web 2.0 capability</td>
<td>Ability to create blogs, wikis, user generated content services etc. on demand.</td>
</tr>
<tr>
<td>B4</td>
<td>Web site development</td>
<td>An excellent web presence for the outside world to enhance communication and reputation.</td>
</tr>
<tr>
<td>C1</td>
<td>World Class information for teaching and research</td>
<td>World class standard library collections in science, social science and humanities</td>
</tr>
</tbody>
</table>