



ACADEMIC LIBRARIES  
OF THE FUTURE

# Scenarios beyond 2020



Dr Geoff Curtis  
Dr Claire Davies  
Dr Max Hammond  
Dr Rob Hawtin  
Gill Ringland  
Dr Chris Yapp

[www.futurelibraries.info](http://www.futurelibraries.info)



**Wild West scenario**



**Beehive scenario**



**Walled Garden scenario**

### **List of abbreviations**

ASEAN	Association of South East Asian Nations
BL	British Library
BRIC	Brazil, Russia, India and China
CPD	Continuing Professional Development
EF	European Federation
FE	Further Education
FTE	Full Time Equivalent
GP	General Practitioner
HE	Higher Education
HEI	HE Institution
ICT	Information and Communications Technology
IP	Intellectual Property
NAFTA	North American Free Trade Agreement
R&D	Research and Development
RIN	Research Information Network
RLUK	Research Libraries UK
SCONUL	Society of College, National and University Libraries
STEM	Science, Technology, Engineering and Mathematics

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# 1 Introduction

## 1.1 General

- 1.1.1 The academic libraries of the future project (LotF) is sponsored by the British Library (BL), the Joint Information Systems Committee (JISC), Research Information Network (RIN), Research Libraries UK (RLUK) and the Society of College, National and University Libraries (SCONUL). LotF was carried out by Curtis+Cartwright Consulting Ltd (Curtis+Cartwright) supported by staff from SAMI Consulting Ltd (SAMI).
- 1.1.2 LotF has developed three scenarios which describe possible futures for teaching, academic and research libraries in the UK at some point beyond 2020, particularly in the context of the changing academic and technological landscape. The scenarios will help Higher Education Institutions (HEIs) and other organisations look at the challenges faced from a fresh perspective and help them formulate strategies to ensure the sector continues to be a leading global force.
- 1.1.3 The terms 'library' and 'librarian'; are used throughout. This is not intended to imply that libraries or librarians as we know them will continue to exist; rather these are a convenient shorthand for an organisation or individual that carries out all or any aspects of information/knowledge management, curation and preservation and information literacy training. Similarly, 'librarianship' is a convenient shorthand for all aspects of the skill sets required to be a good 'librarian'. There can be no universal assumption that a library, librarians or librarianship will exist beyond 2020.

## 1.2 Objective of this document

- 1.2.1 This document sets out the three scenarios developed in LotF and provides a structured comparison of the scenarios which focuses on the library aspects. This is aimed at those wishing to understand and use the scenarios for strategic planning.<sup>1</sup>

## 1.3 Why this study?

- 1.3.1 Libraries are fundamental to academic learning, teaching and research. However, the world is, and will continue to be, a constantly changing place. Uncertainties for the long-term future include: how UK Higher Education (HE) will be funded and operated; how information will be created, discovered, accessed and managed; how learning, teaching and research will evolve to take best advantage of improvements in Information and Communications Technology (ICT); the information needs of users for learning, teaching and research, the knowledge economy, and students and researchers as 'consumers'. The fundamental question is how to plan for libraries to meet these potentially disruptive challenges.

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<sup>1</sup> A separate document (*How to use the scenarios* CC413D042-1.0, 31 March 2011) provides guidance and practical examples of using these scenarios for strategic planning.

- 1.3.2 Developing and implementing business strategies over a three- to five-year timescale is now commonplace in HE. Looking beyond this horizon (over ten to 20 years, or more) is less common and more challenging. To improve decision-making and plan effectively for the future, this longer timescale also needs to be considered and scenario planning is a well-tried means of doing this. Scenarios describe a world some distance away in the future, beyond 2020. This long time span encouraged workshop participants to challenge their current world-view and respond in imaginative and sometimes radical ways.

## 1.4 Development of the scenarios

- 1.4.1 The scenarios are based on the contributions from around 80 stakeholders at two workshops in the spring of 2010 and three smaller workshops to flesh out the detail in the summer of 2010. The wide range of influential stakeholders included institutional senior managers, librarians, funders, students, researchers, legal specialists, service providers, publishers, technologists and government policy makers. The scenarios and analysis in this document provide a broad overview of the broad global political, economic and social environment beyond 2020, the nature of HE within this environment, how libraries might be organised and the services (including physical space) they might offer. The scenarios are made up of common assumptions about the future plus scenario-specific descriptions.
- 1.4.2 A final workshop held in February 2011 used a strategic planning exercise to demonstrate the utility of the scenarios. It also provided useful feedback which has been incorporated in the scenarios.

## 1.5 Common assumptions

### Introduction

- 1.5.1 Common assumptions underlying the scenarios are set out below. Many characteristics of the worlds are different for each scenario and so are not included here. These include, for example, IP protection, delivery of information literacy and type and delivery of ICT services.

### The world at large

- 1.5.2 The world population will be about 9 billion, and ageing globally. Europe in particular will have an ageing and static or declining native population, with immigration changing many European assumptions and ways of thinking. The economic rise of regions outside Europe will have changed the political global balance of power, and nation states will have less capability to enforce their boundaries.
- 1.5.3 Economic value is created by services with products in new business models. Nano-, Bio-Info-Cogno-technologies are rapidly changing lifestyle assumptions.

### **The UK/British Isles**

- 1.5.4 The population of the UK beyond 2020 will rise to over 70M compared to 63M in 2010.<sup>2</sup> However, the average size of the 18 – 21 cohort will increase much more slowly, resulting in an aging population.

### **The current economic crisis**

- 1.5.5 With the perspective of history, the current economic crisis is unlikely to persist. Indeed, there may be a number of economic cycles between now and the worlds described by the scenarios. The economic crisis should not be seen as a strong driver for the future. Rather, the immediate need to meet substantially reduced budgets means that it may well be a strong enabler for change. For example, a strong business case might be made to invest now to save money in the near future by adoption of new technology which allows a reduction, say, in staff headcount or in capital assets such as paper holdings.

### **ICT as a driver for change**

- 1.5.6 A significant driver for change that affects each scenario is improvements in ICT. Beyond 2020 ICT will be cheap and pervasive and, above all, it will be intuitive and easier than ever to use to discover, access and manage complex information.
- 1.5.7 Personal mobile devices and the wireless infrastructure will have improved to such an extent that all students, researchers, teachers and managers in HE will use personal, portable always-on devices that give access to digital resources, wherever and whenever needed.
- 1.5.8 A consequence of developments in ICT is that beyond 2020 the provision of space by a library for research and learning will generally be separable from the provision of research, teaching and learning information resources.

### **Uptake of digital content**

- 1.5.9 The recent news from Amazon that eBook downloads are now in excess of physical sales provides grounds for a realistic assumption that beyond 2020 all content will be available in digital format, and usually only in digital format, for both the sciences and for arts and humanities. Physical books and journals will be rarely produced or used.
- 1.5.10 Significant progress will have been made towards completing the digitisation of paper-based records. Practically all scientific books, papers and other records post 1900 have been digitised. Arts and humanities materials will have the majority of post-1950 books, papers and records digitised. Remaining paper materials required for teaching or research will normally be digitised on demand. Some special collections (eg extensive collections of frail manuscripts) are likely to be the exception. Libraries will develop and change to encompass the new practices and technologies.

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<sup>2</sup> See Office of National Statistics [www.statistics.gov.uk/cci/nugget.asp?id=6](http://www.statistics.gov.uk/cci/nugget.asp?id=6) (accessed 17 February 2011).

### **Search and navigation**

- 1.5.11 The development of the internet and related technologies means that in the majority of cases beyond 2020 search and navigation will be very much a user activity generally requiring very little input from librarians. The exceptions will be largely concerned with special collections or opening up new research fields. However, advanced Artificial Intelligence interfaces will not have completely replaced human involvement in complex search and navigation.

### **Information literacy**

- 1.5.12 Information literacy will be universally recognised as an essential skill in the digital age. It can be expected that students and researchers will have received a thorough grounding in their passage through school and HE.

### **Authorship**

- 1.5.13 An author beyond 2020 will still write materials in the forms of research papers and 'books'. Learners may well buy more individual topics (ie a chapter) rather than whole books in many disciplines. However, authors will also produce related materials (eg slide decks, webpages, podcasts, videos and other media creations). The notion of an 'e-portfolio' in 2011 will have developed as a support tool for academic life as much as the learner.

### **Teaching and learning**

- 1.5.14 Beyond 2020 teaching and learning will have made real improvements in effectiveness through the use of digital information resources and digital learning techniques. On-line access to lectures and classes/tutorials will be available and well-used but will not have entirely replaced attendance at an HEI by full-time students.

### **Research**

- 1.5.15 Beyond 2020 a researcher will have all the relevant research materials available on-line. Analysis and simulation tools will help the researchers analyse and synthesise research information effectively and efficiently both in STEM areas and in arts and humanities.

### **Libraries**

- 1.5.16 Although it is a gross simplification, today the starting position could be expressed as that a librarian is usually a person who works in a library. Libraries are located within individual institutions. A library is a physical space that provides services to students and researchers. Libraries have relationships with publishers and authors. In all the scenarios, every one of these relationships will have been transformed. The roles that librarians play will change in different ways according to the specific scenario. Today, Librarianship is a largely unified profession. The diversity of roles and skills in each scenario provides a wide range of possibilities for fragmenting fracturing, unifying and growth or decline of librarianship.

## 1.6 Overview of the scenarios

1.6.1 It is important to remember that scenarios are not predictions about the future; rather they describe possible futures. The workshops identified the critical factors that led to the highest impact on, and most uncertainty about, the future. These form the axes for scenarios and comprise:

- whether society and HE have open or closed values. This is a measure of the overall values of the society and the legal or cultural constraints and protections for ownership, use and exchange of information.
- whether HE provision is dominated by the state or by the market.<sup>3</sup>

1.6.2 As a result of the workshops it was decided that this space could best be investigated through the three scenarios presented below. Each scenario has been given a descriptive name which expresses the essence of the scenario to the reader.<sup>4</sup> These scenarios are not intended to be 'preferred' scenarios; each just describes one possible future world.

1.6.3 The scenarios can never describe the various worlds in full detail. Indeed, it is essential to leave room for 'what ifs' as part of the strategic planning process.

### Wild West scenario (see Section 2)



The phrase 'Wild West' has entered colloquial use to describe any situation that has a no-holds-barred free-for-all flavour. It is used in precisely this way as the name for this scenario. Specifically, this world is dominated by capitalism and corporate power, including the HE sector.

1.6.4 In this world private providers compete with each other and the state to offer students educational services, including information services and learning material. The power lies in the hands of the consumer ('student' being a rather old-fashioned term) who is able to pick and choose from courses and learning materials to create a personal educational experience.

### Beehive scenario (see Section 3)



'Beehive' is intended to draw obvious parallels with the hierarchical and structured life of the bee colony, where all is ordered to ensure the common good of the whole community.

1.6.5 The Beehive scenario is a world in which society and HE have open values and the state is the primary funder and controller of HE. Its overriding aim is the production of a skilled workforce, and to this end it has created a largely homogenous HE system for the masses while allowing the elite to attend the few traditional institutions. A limited market is used to provide competition within the HE system to drive up quality.

<sup>3</sup> The term market is retained because it was used in the workshops but in reality there can be market approaches both within state and private sector provision.

<sup>4</sup> The descriptive names for each scenario (Wild West, Walled Garden and Beehive) were chosen after the second workshop and represent the essence of each future world. This workshop selected the three considered to offer the most interesting futures for academic and research libraries from a long list of potential scenarios. In considering names we drew on the suggestions generated at the workshop, and on the characteristics captured by our two primary axes: State/Market controlled and Open/Closed values.



**Walled Garden scenario** (see Section 4)



A Walled Garden is an oasis, shut-off from the outside world. Inhabitants of the garden neither know, nor care much about the world beyond the garden's comforting walls. After all, how could the flowers out there possibly be any better than those within the garden?

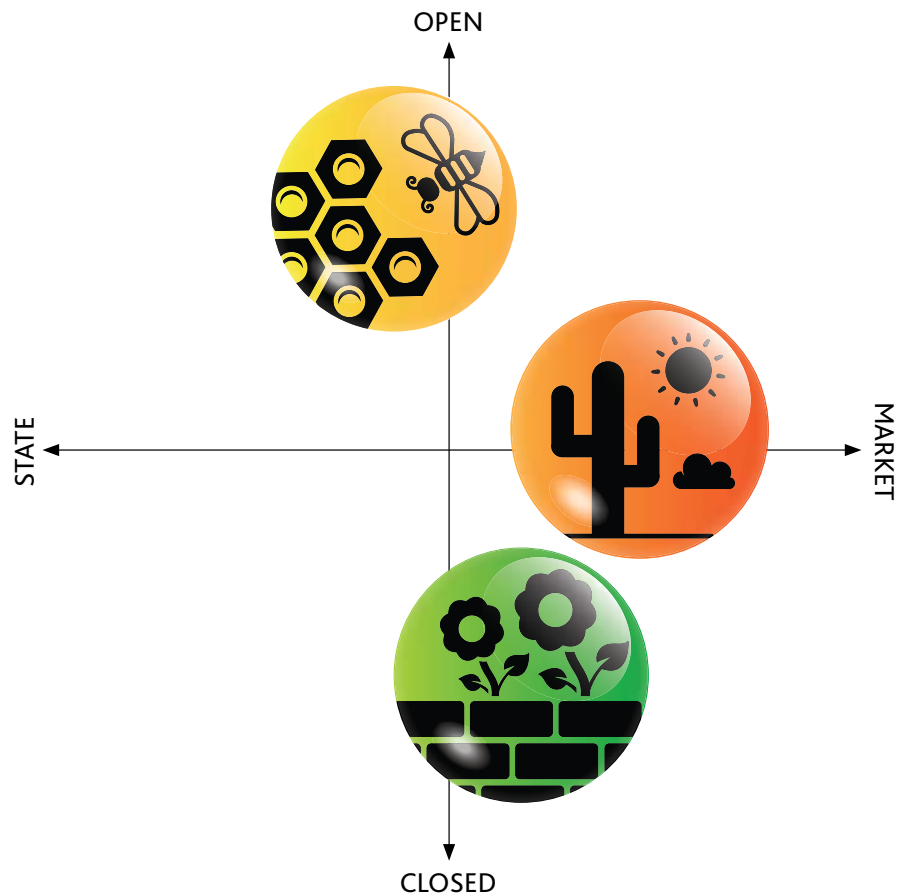
- 1.6.6 HEIs in this scenario are 'Walled Gardens'. The closed nature of society makes HEIs insular and inward-looking, isolated from other institutions by competing value systems. Provision of information services in this world is as much concerned with protecting their own materials for others as it is in enabling access.

**Positioning of scenarios**

- 1.6.7 The general positioning of these three scenarios against the open/closed and market/state axes is illustrated in Figure 1-1 (see Annex A).

**Figure 1-1:**

The scenarios positioned according to the dominant scenario characteristics



## 1.7 Early indicators

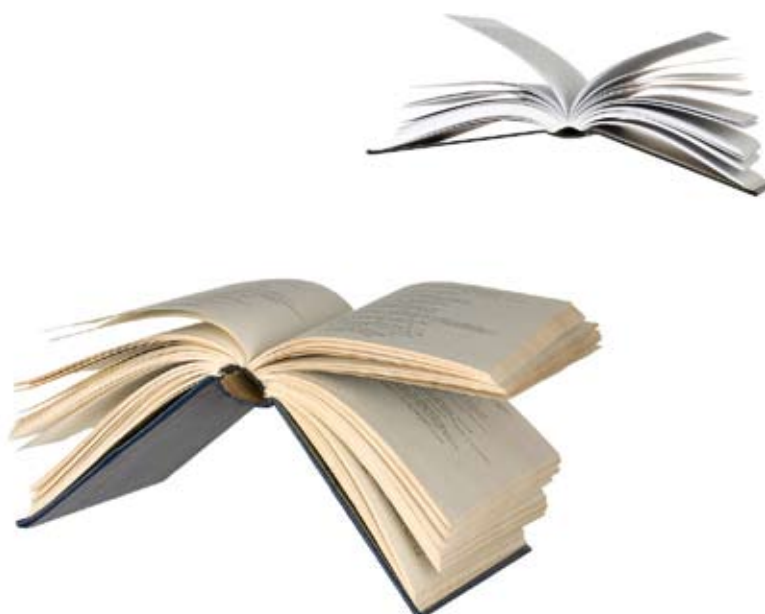
- 1.7.1 Early indicators are headlines that would tend to suggest that one of the scenarios was more likely to occur than another. Early indicators are used to help assess the need to review/refine scenarios and/or strategy. The owners of strategy resulting from the scenarios will need to keep a watching brief on the news and educational media, identify potential early indicators as they arise and make a judgement whether sufficient early indicators have emerged that point in a particular direction for a conclusion to be reached. Examples of early indicators are included with the scenario descriptions.

## 1.8 How to use this document

- 1.8.1 There are a number of ways in which this document might be used:
- for how UK HE might develop beyond 2020 (read the global environment and UK HE context, learning and research sub-sections of each scenario);
  - for how academic libraries might develop (read each scenario);
  - as part of a long-term strategic planning exercise (read the relevant scenarios<sup>5</sup>).
- 1.8.2 There is a lot of information in the scenarios and users need to be clear as to the meaning. This can be difficult, especially when looking across the different scenarios, some of which are radically different from now. So, to help readers assimilate the richness of the scenarios, Annex A tabulates the differences and similarities between the key elements of the scenarios. Table A-2 also provides a view of how ICT and related information services are supported/provided for each scenario.
- 1.8.3 Table B-1 provides a summary of the key characteristics of the current HE system as a baseline for comparison with the scenarios.

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<sup>5</sup> Depending on the style of strategic planning undertaken, this might be a preferred scenario or all scenarios.



## 2 Wild West Scenario



The phrase 'Wild West' has entered colloquial use to describe any situation that has a no-holds-barred free-for-all flavour. It is used in precisely this way as the name for this scenario. Specifically, this world is dominated by capitalism and corporate power, including the HE sector.

### 2.1 Introduction

2.1.1 In this world private providers compete with each other and the state to offer students educational services, including information services and learning material. The power lies in the hands of the consumer ('student' being a rather old-fashioned term) who is able to pick and choose from courses and learning materials to create a personal educational experience.

### 2.2 The global environment

#### General

2.2.1 Beyond 2020, a world is envisaged in which digital technologies are embedded within society to a level where they have become part of the infrastructure, as electricity or clean water are taken for granted today. Information services are organised differently in different localities. There is a mixture of provision by the state, private and third sector organisations.

2.2.2 Many of the immediate pressures on HE in 2011 in the aftermath of the credit crunch are already creating pressures on the system in terms of cost, quality and performance that make the 'Wild West Scenario' a plausible scenario for beyond 2020. Many instances of what is seen then already exist today in a local or embryonic form. It is not envisaged that a major future event is required to create a tipping point to make the scenario realisable.

#### Values

2.2.3 Society is open in that a capitalist free market exists, but commercial imperative prevents complete openness as information provides economic advantage.

#### Political

2.2.4 National governments have lost some of their power through decentralisation. This is manifested through: a rise in localism typified by a return to the city state where regions are defined by groups of cities (eg London and the South East, including Reading, Southampton and Guildford formed as region within Europe); in the power of private corporations particularly those with global reach; and of the power of trading and power blocs such as NAFTA, the European Federation, ASEAN, etc.

- 2.2.5 Asia has grown in population and wealth, and Africa has boomed as its youthful population enters the workforce and the new green revolution allows Africans to expand their food supply. Asia's and Africa's influence has grown, but internal tensions have allowed the US and Europe to maintain an albeit reduced power and influence. Social cohesion in the UK has reduced as London maintains its 'world city' status and other parts lag behind.

### **Economic**

- 2.2.6 Economic power has shifted to Brazil, Russia, India and China (BRIC) and other regions outside the US and Europe. International comparisons no longer focus on GDP but on a basket of metrics, including 'liveability' factors such as air quality and traffic congestion. The world's economy has shifted significantly to bottom-up low carbon initiatives. Products and services based on nanotech, biotech, infotech and cogno (brain sciences) are sources of economic power and large numbers of jobs.

### **Societal**

- 2.2.7 Around the world there is a wide divide between rural and urban economies and societies. Global cities such as Mumbai and London are linked more closely to each other than to their hinterlands, with converging sets of values which are different from those in rural areas. These common value sets give both economic and social power. Economic migration is extensive and causes conflicts in otherwise successful city regions.

### **Technological**

- 2.2.8 Technology is largely developed and diffused by the private sector with nation states less effective at regulation. Intellectual Property (IP) protection is still in place but is sometimes difficult to enforce leading to widespread pirating and commoditisation of new technologies. Business models such as open access with value-added services are used to deliver economic value rather than sale of raw products.

### **Legal**

- 2.2.9 The power of internet sharing, peer networking and piracy have meant that attempts to create global IP agreements have failed. Within a region, close relationships between research establishments and regional economic clusters and they protect IP as best they can through commercial confidentiality. The use and utility of patents has declined.

### **Environmental**

- 2.2.10 Regional approaches deal with water and food supply and with energy. Global top-down approaches to tackling climate change have failed.

## 2.3 UK HE context

### Free market rules

- 2.3.1 Many trends at the start of the century last well beyond 2020. The mix will have changed with fewer full-time students and a substantial growth in part-time and life-long learning. E-learning is mature with fewer live lectures. Accountancy is taught nearly 100% online, while nursing and caring professions tend to have the lowest level of online activity. Vocational qualifications have many faces with some sectoral qualifications and industry certification having greater perceived value than certificates from HEIs. Business, science and technology disciplines do well, but the student focus on employability means there is a reduction in access to formal teaching of the arts and humanities.
- 2.3.2 A small number of global 'brands' of HE emerge. It is possible to study at Harvard in Lancashire or Oxford in Beijing. There is also a small number of elite HEIs, where there is a greater emphasis on guidance and less on teaching. The elite HEIs tend to be research-intensive and are where blue sky research is concentrated.

### Localism

- 2.3.3 The majority of students go to regional (local) vocational institutions, or private institutions. Only a minority of students attend the elite HEIs.

### Diversity of HE provision

- 2.3.4 There is now a diverse provision of HE with many local learning institutions being the result of mergers of HE and FE institutions and these provide both HE and vocational courses and support. Essentially, the attempt to lower costs for students in the 2010s made local arrangements between HE and FE inevitable and put a focus on vocational education to prevent a 'lost generation' to employment. The possibility of institutional failure and mergers was acknowledged and accepted. Economic pressures within HE put pressure on libraries as much as other parts of HE to become revenue earning. Outsourcing of services was needed, even if resisted, to balance the books.
- 2.3.5 Many HEIs are branches of a national-level institution. HEIs can be state or privately run. There are many new entrants from the private sector that have bought up 'failed' institutions or departments and developed skills-based packaged adult education. These include publishers, technology companies and e-learning specialists. These institutions provide structured learning with rigid timetables, materials and approach.
- 2.3.6 Private sector organisations have moved in, both in competition and in collaboration with academic institutions. Examples of this are a University brand franchised on the 'Starbucks' model which provides standardised education across the world and 'EzeeU' which provides basic education around a 'no frills' information discovery and access service for academic teaching, learning and research.

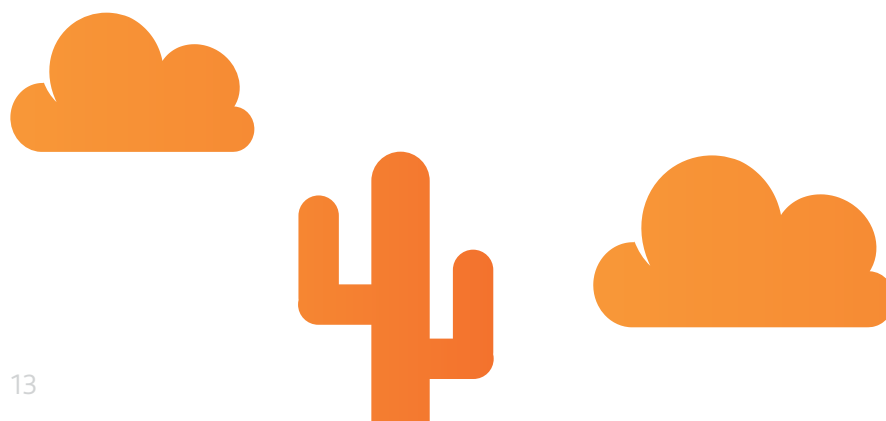
- 2.3.7 Research is concentrated within fewer academic institutions. This is largely long-term, blue skies research. Near to market research is partnered between commerce and academic institutions rather than being embedded within them. Local teaching and learning institutions build partnerships with research-intensive universities in the UK and globally depending on the local economic activity. For instance, a neuroscience business cluster in the North East might seek partnerships with US, Asian and Latin American institutions as much as UK HE. This is largely driven by the business cluster and the local economic agenda.
- 2.3.8 The research-intensive HEIs are increasingly independent and global in their aspiration, competing and partnering with each other, while reducing their interaction with other parts of the UK eco-system. Regional HE/FE organisations partner with Research Institutes to develop spin-offs and economic clusters. These are most successful in areas where there is a research-intensive HEI. Research both nationally and regionally has a strong focus on Science, Technology, Engineering and Mathematics (STEM) and economically relevant disciplines.

### **Nature of study has changed**

- 2.3.9 The notion of study has undergone significant change with much more group rather than individual study. Many students study locally during the transition from school to HE. Success at this level may lead some students to apply or be recruited by these elite institutions to further their study. Many students attend courses part-time while working. Learning is commonly conducted across institutional boundaries, with students able to undertake a personally tailored education. Much teaching and learning at this level is packaged with digital content, exercises and support for learning being available at a fixed price, with top up services available. Many lecturers are not tenured.
- 2.3.10 Learning is seen essentially as a social and a socialising experience. Group study, group projects and mutual support is needed, regardless of the advances in technology. To overcome isolation and loneliness of learners, local spaces hold support evenings with a mixture of social and learning goals.

### **Adult learning**

- 2.3.11 The ageing society provides an opportunity for the new private sector entrants to education provision and leads to a revitalisation of adult learning. For instance, an individual interested in seeing if there was local interest in setting up a local study group would go through the local 'EzeeU'. Furthermore, some of these opportunities might themselves attract sponsorship. A travel company might sponsor language courses through 'EzeeU' to support its business.



## Research

- 2.3.12 Arts and humanities research relies heavily on philanthropic giving and is largely conducted within the 20 research-intensive institutions. Tenure for researchers has all but vanished. More research is carried out outside HE than in 2011, especially STEM near-market work which is undertaken in conditions which protect IP, in regional clusters.

## Funding of post-18 learning and research

- 2.3.13 Funding of learning is from the learners, with scholarships from business and some philanthropy. The elite HEIs provide an education for those who can pay, and they attract exceptional students via scholarships from endowments. Students are able to buy 'bundles of services' from different institutions, with course fees distinct from any other services they may purchase. The elite HEIs have grown their endowment funding.
- 2.3.14 Funding for research is spread between industry, national and local (regional) government. Funding of research with societal or economic focus is from commercial or industrial sponsors encouraged by tax breaks rather than through grants.

## Regulation of post-18 learning and research

- 2.3.15 There is little national regulation of learning. Private company league tables are dominant in setting expectations of value. Research is regulated, where it is regulated at all, within a cluster related to an industry or locality. Some regulation exists where society demands it, such as for health.

## Size and shape of the HE sector

- 2.3.16 Table 2-1 sets out the key elements of the UK HE context for the Wild West scenario.

## Publishing and IP

- 2.3.17 Traditional academic publishers exist alongside self publishing and new peer review approaches. IP remains an unresolved problem in the digital era. There is a mix of business models, including licensing and value added services around open access; these can be at the institutional or individual level. Protection of IP is a constant battle against piracy.
- 2.3.18 The tensions between the business models make relationships between authors, publishers, HEIs and libraries difficult to manage. There have been casualties among the publishing community.



**Table 2-1:**  
Key characteristics of the UK HE context for the Wild West scenario

Characteristic	Description
Number of teaching and learning institutions	<p>The boundaries of HE are blurred, but the ecosystem is effectively multi-tiered:</p> <ul style="list-style-type: none"> <li>• 20 academic and research-intensive HEIs with ~10,000 – 50,000 FTE students at each; there is less teaching at these institutions than in 2011.</li> <li>• 3 major vocational institutions with a total of 1M FTE across 40 – 50 sub-institutions.</li> <li>• 25 new entrants from the private sector, eg publishers, technology companies and e-learning specialists. Each needs ~60,000 FTE students to be viable. Most are 'for profit' though some social enterprise models survive.</li> </ul>
Number of research institutions	<p>Fundamental research is mainly in the 20 research-intensive universities. Each region has 1-2 clusters of privately funded near-market research and knowledge transfer institutions, supported by local business and regional (local) government.</p>
Number of post-18 learners	<p>The total number of students is ~3M FTE. Most of adult learning is in short intensive bursts.</p>
Number of researchers	<p>This scenario is intensive in research as part of the UK's drive to stay competitive. Fluidity between business and academic research means that few people stay in university research for a long time. At any one time there are around 195,000 researchers.</p>
Number of non-UK learners and researchers	<p>The rise of Asian Universities has led to a drop in the number of overseas students. There are around 65,000 overseas students concentrated in the 20 research universities and around 35,000 at other institutions.</p>



## 2.4 'Library' services and organisation

### General

- 2.4.1 The pattern is of fragmentation, specialisation and reconfiguration with no single model dominating. These changes occur at every level both for users of academic library services and academic librarians. In 2011 a librarian is someone who works in a library. Beyond 2020, it is difficult to define a common group of librarians who share a common set of skills and values. There are many more disciplines and specialisations than are recognised in 2011.
- 2.4.2 The relationship between the librarian and the library is changed. In 2011 academic libraries were housed within academic institutions. The variety of both research and teaching and learning institutions is far greater beyond 2020 than 2011. Libraries that in 2011 were in FE, HE or local authority control are merged into local cooperatives which have contractual relationships with bodies in education. New models of 'library' have emerged at a local level and as chains.
- 2.4.3 The progress of digital technologies has created challenges for publishers and other stakeholders, including authors and researchers. This progress has also affected the services provided in academic libraries. New opportunities arise for information professionals, which librarians are in a position to exploit, through merger, competition or cooperation with other groups in society. Despite the growth of digital technologies, the need for the library as a physical space continues. However, the relationship between the library as a space and the library as a service is complex. Some institutions have sold and leased back their physical property to chains that run the physical spaces as social learning centres.
- 2.4.4 The careers of librarians are also more varied. Many have specialist roles and work freelance, for multiple institutions, or are embedded in academic teams in new ways. The central message is that of change. Many of the skills that librarians had in 2011 are more valuable in a world of vast digital information spaces. However, they do not have a monopoly on them.
- 2.4.5 While much of the 'content' is now digital, there is still need for long-term preservation and curation of non-digital content. The economics of this leads to regionalisation and/or specialisation. As a consequence there is a blurring of the boundaries with museums and other cultural institutions. For example, many institutions curate and hold regional historical materials.

### Teaching and learning

- 2.4.6 The separation of the space from the institution facilitates support for students studying different modules from different institutions. Front-line support in these spaces enables a potential student to see what modules are available from which institution on what terms.

- 2.4.7 The variety of what is considered to be a library is broader than in 2011. A key challenge is to understand the difference between the library as a space and the library as a service. Working in a provided physical space continues to be a critical part of the student experience despite a belief in the power of digital technologies as a learning and research tool. Space management is increasingly divorced from the provision of library services. Many of the physical buildings existing in 2011 as libraries are not fit for purpose beyond 2020. Many historic library buildings have been repurposed as, for example, hotels. The increasingly diverse nature of the 'information professions' has pulled at the foundations of what is seen in 2011 as librarianship. Despite this the profession has remained 'whole' by striving to create an impact and a strong brand.
- 2.4.8 When an institution wishes to create a new 'module', it contracts a series of specialists to work together to create that module. The team consist of the lecturers, specialist authors, librarians, technicians and learning support professionals. The package consists of a blended mix of digital resources, social support and project work according to the discipline. To manage costs, most institutions put an emphasis on 'packaged' learning. The elite institutions offer greater flexibility but at a much higher cost. The library services are usually bought in from a range of suppliers. Information literacy training concentrates on making sensible buying decisions and how to combine different resources to build an effective learning experience.

### **Research**

- 2.4.9 When a new research project is being set up, the 'librarian' for the project is involved from its inception to ensure that the appropriate mechanisms are in place to support the information management needs of the project and the wider community. The librarian calls upon a wide variety of library specialists to support the project on a consulting basis.
- 2.4.10 Particularly for multi-disciplinary and inter-disciplinary research fields, the digitisation of information offers the potential for new forms of appraisal on an open basis. A research project in health might for interest be peer reviewed by the medical community, an ethical community, an economic community and a social sciences community.

### **Librarians and librarianship**

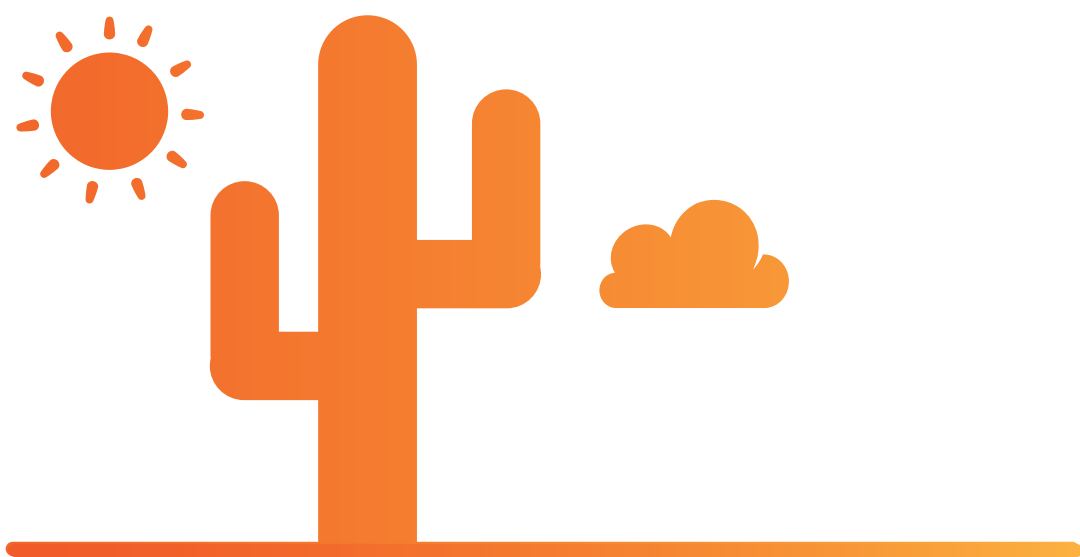
- 2.4.11 Information professionals are increasingly embedded through the lifetime of the research project or teaching development work as members of the team with specialist knowledge on the discipline. In the same way that medical records or legal librarianship have developed as specialist disciplines, the large scale of information capture, process and storage in many fields of research have created new fields for 'librarianship'. The example of ClimateGate in 2010 started the growth of specialist information managers in the research teams rather than in the 'library'.

- 2.4.12 Academic life is increasingly fluid with many academics having multiple posts in teaching and learning, research and knowledge transfer that are short or medium term. Support from librarians has increased over the years. Freelance or contract librarians provide the required often part-time support to academic teams. Within the elite institutions these 'personal librarianship' services are a key selling point for an institution in recruiting star teachers or researchers.
- 2.4.13 For the 'users' of library services, be they researchers, authors or lecturers or students, there is a common theme of the librarian providing 'front-line support'. The design, organisation, protection of IP, and curation and conservation of materials combine what were seen in 2011 as IT skills with librarianship skills.
- 2.4.14 For an adult learner, or for someone seeking Continuing Professional Development (CPD) training, the librarian is a professional who is accessed virtually or via an 'EzeeU' who guides them through what is available locally and via distance means and the packages of support available. There has been a constant need for reinvention as 'personal' services are automated to reduce costs and the human value-added services need to be redefined.
- 2.4.15 From the professional viewpoint there has been considerable change. The library manager has a very broad role with a responsibility for running a diverse set of professionals. Many are not directly responsible for managing physical spaces which are typically contracted out. The library managers are relationship managers, builders of partnerships and heavily networked. Many do not come from a physical libraries background. They manage a series of relationships with shared service providers and with a network of specialists hired in on a consulting basis to tackle specific areas of development.
- 2.4.16 The library managers are members of, or report to, the institution's board. They are measured on the ability to manage expectations and on satisfaction of the stakeholders in the service, be they lecturers, researchers or students, depending on the HEI. Some work in shared service organisations providing services to a locality or to a chain.
- 2.4.17 Entry to the librarian profession is through a short course followed by an increasing array of specialist qualifications and on-the-job experience. Many librarians are freelance or work in specialist bodies providing services to a locality or a variety of institutions. An increasingly ageing society makes home working more prevalent, so that skills in short supply are available from people into their 80s and 90s.
- 2.4.18 Jobs in the elite institutions are highly competitive and sought after by specialist librarians. This is because the expert librarians are working much more closely with lecturers, researchers and students alike. They are the information specialists who shepherd the 'subject' experts and students through the information and knowledge management process.

## 2.5 Early indicators

2.5.1 A move to a more market-driven HE sector would tend to indicate that the **Wild West** scenario might be more likely to occur. Evidence might include:

- significant private sector entrants for the provision of HE;
- relaxation of central control of the HE sector by HEFCE;
- adoption of a more competitive stance by institutions (eg competing with other institutions on lower student fees);
- a sustained trend of new commercial vendors wishing to provide content;
- a reduction of interest in institution sector bodies such as SCONUL and RLUK or fragmentation of bodies representing librarians.



## 3 Beehive Scenario



'Beehive' is intended to draw obvious parallels with the hierarchical and structured life of the bee colony, where all is ordered to ensure the common good of the whole community.

### 3.1 Introduction

- 3.1.1 The Beehive scenario is a world in which the state is the primary funder and controller of HE. Its overriding aim is the production of a skilled workforce, and to this end it has created a largely homogenous HE system for the masses while allowing the elite to attend the few traditional universities. A limited market is used to provide competition within the HE system to drive up quality.

### 3.2 The global environment

#### General

- 3.2.1 The desire of the old European Union countries to maintain their position in the world and their standard of living in the face of extensive competition from BRIC led to the creation of the European Federation (EF) under the treaty of Madrid in 2035 of which the UK is a part. The strength of the EF has meant that values in the EF have remained open in the long tradition of western democracy.
- 3.2.2 In the years beyond 2020 the world has become increasingly competitive; the continuing economic progress of the BRIC countries and their commitment to developing high quality HE systems means that even high-tech jobs are now moving from the West.

#### Values

- 3.2.3 Social justice and social mobility are powerful forces in the UK political landscape and with employability are powerful drivers for UK HE policy. Values in the EF, of which the UK is part, have remained open in the long tradition of western democracy and culture.

#### Political

- 3.2.4 There is a balance of power and influence between the EF and the US on the one hand, and BRIC countries on the other. The EF has responsibility for the European economy, foreign policy and defence. In other areas such as education and social welfare, the EF has overall responsibility for strategy and higher-level policy, with state-level policy and implementation devolved to the individual states.

### **Economic**

- 3.2.5 Globalisation has largely 'worked' in as much as free trade and cooperation between states is the natural way of things. However, the world will have become increasingly competitive. The nature of the global knowledge economy and the international competition for jobs, together with the effects of an increasingly longer-lived population, low job security and the affordability of pensions, means that people now work longer than ever. It is important to be information and technology literate to find and retain a well paid job.

### **Societal**

- 3.2.6 Social justice and social mobility are still powerful forces in the UK political landscape and have remained as powerful drivers behind UK HE policy, alongside employability. The idea of corporate social responsibility has matured into a fully-fledged ethos.

### **Technological**

- 3.2.7 There is a second industrial revolution in the EF and the US, based on effective use of low-carbon energy and nanotechnology. Technology continues to find new ways of integrating itself further into daily life.

### **Legal**

- 3.2.8 The values of sharing and openness have come to be held as defining principles. IP still exists, but its worth is now based more on the value-added services that are enabled by the IP (eg publishers have largely developed the services to help people take advantage of the vast amounts of information available). These principles extend into the commercial sector through stricter controls on monopolistic and anti-competitive practices.

- 3.2.9 **Environmental**

The climate change challenge has proved difficult to address. However, a large reduction in the use of fossil fuels has been brought about by advances in ICT, such as holographic displays and ultra-virtual reality, which have made virtual meetings effective and significantly reduced the need for business travel and, in some cases, travelling to work.

### 3.3 UK HE context

#### HE for all

- 3.3.1 On a worldwide scale, and in the US, UK and Europe especially, employer expectations now dictate that virtually all skilled or professional employment requires at least some post-18 education. In the UK there is a state-sponsored system that retains elements of the traditional university experience for a select few universities, but the majority of young people enter a system where courses are so tightly focused on employability that they are near-vocational.
- 3.3.2 The economic problems, the need for employability and the demands of the global knowledge economy started the UK HE sector along this path. Similar pressures together with the move to greater integration across Europe led to similar approaches there. The transformation was essentially complete by 2020. The same approach will be used beyond then with some changes introduced by Government to improve equality of opportunity. It is recognised that expertise in some arts and humanities (eg, history) are strategically important and so arts and humanities will recover somewhat from an earlier low point. There will be no significant changes to the overall structure of the UK HE sector beyond those implemented in the 2010s, but gradual evolution. Beyond 2020 the HE sector feels mature and stable.
- 3.3.3 School and HE qualifications across the EF have been harmonised. Harmonisation of vocational qualifications is patchier. For example, the creation of the EF has led to common accountancy standards and practice but has not removed the differences in the component states' legal systems. The EF and UK governments view the primary purpose of HE to be the production of a skilled workforce, whilst remaining committed to the ideals of social mobility and equality. The employment-focused nature of the qualifications and combination of a wide range of student backgrounds means that a range of study options are available. These include distance-learning courses, vocational courses, workplace-based learning and courses developed by or in partnership with employers. Life-long continual learning is the norm with the concept of a 'traditional' degree only remaining at a small number of elite HEIs.
- 3.3.4 Europe's continued strong focus on the knowledge economy has provided an environment which allows research to flourish. But in the UK the increased focus on student employability has had the effect of reducing the overall size of the research base while increasing its focus on areas of strategic importance. This focus includes subjects that enable wealth creation (eg STEM subjects, modern foreign languages relevant to the UK's business interests and other subjects such as economics and quantitative social sciences which are essential for managing the country). The HEIs in which research is conducted are notionally autonomous in how they go about their research, but they remain accountable to the funding agencies.

- 3.3.5 Collaborations across institutions and information sharing with other institutions and the public are the standard working practices, and there is much collaboration for mutual benefit with commercial research organisations. However, to ensure return on investment, research quality is regulated by government-controlled research assessment which provides 'kite marking' in line with an EF directive. There are also now much stricter controls on research funding than in the early 2000s, with the government stipulating through the funding bodies the areas that receive the most funding.

### **Localism**

- 3.3.6 Most students study close to their parents' or own home because of the economic costs of attending an HEI and so local clusters of HEIs have developed to provide a wide range of offerings. Courses and learner support for the majority of students are franchised.

### **Mix and match degrees**

- 3.3.7 Students can mix and match courses at different HEIs to achieve the required qualifications through accumulation and transfer of course credits and with the level of teaching support and materials appropriate for them. The wide variety of modules on offer requires advice and guidance for learners to help them pick out packages which suit their skills, life style and needs. Many students are sponsored by employers, with courses and content specified by the employer.

### **Hub and spoke model**

- 3.3.8 HEIs operate on a subject by subject basis either as a centre of excellence (a hub) typically supported by a research base or as a client (a spoke). Where feasible, they seek to be a hub and franchise out the courses and support. Otherwise they buy-in courses and support from hubs. Local learning support staff teach the students using the franchised materials. Many institutions are both hubs and spokes. In complex areas such as medicine, a local medical school may have a speciality in nursing, where it is a hub, but may be a spoke in anaesthesia. In turn, this leads to an approach to IP in which the hubs develop and protect their IP and trade it with the spokes.

- 3.3.9 HEIs with few hubs are under pressure to merge or be taken over by stronger institutions. Part of the savings often comes from the economies of scale from rationalising the digital resources across multiple institutions (eg each institution no longer needs to create and maintain its own lecture courses). Hubs tend to be in local economic clusters or have close relationships with employers in their speciality.

- 3.3.10 Teaching and learning are now partially based around use of pre-recorded lectures and seminars provided by the hubs. Lectures come with an online support package and exercises. Local learning support staff provide support through small groups or online. Learning support for the student is packaged and various top up packages are available at different costs according to need.







- 3.3.11 Lecturers who create learning materials are associated with a hub and, other than the elite institutions, a similar approach to teaching and learning applies but with a higher ratio of live lectures. 'Star' lecturers based at hubs tour spoke institutions to give keynotes and add value for the students. These performances are accessible to registered students at all affiliated institutions both live and via the 'Cloud'. Many lecturers are freelance and mix lecturing and 'master classes'. Qualifications and standards are in place, and this, coupled with regular assessment against the standards, ensures that content and delivery of lectures is at an appropriate level. Expert researchers who may not be good communicators are supported by learning-support staff to translate their materials into lectures and teaching materials of a proper quality. The efficiencies and economies of scale brought about by e-learning mean that there is a higher student/teaching staff ratio than now.
- 3.3.12 The hub and spoke model also develops for research but is not necessarily the same arrangement as for teaching and learning. Blue skies and early development research is concentrated in the hubs, which are largely elite HEIs. Near-market research or development is typically carried out within spokes. These tend to be departments within HEIs which have relationships with commerce and industry as part of a local economic cluster, either within the UK or overseas.

#### **Elite research-intensive HEIs**

- 3.3.13 A small number of elite research-intensive HEIs continue to offer traditional higher education across STEM subjects and the humanities. Most HEIs outside the elite universities offer only STEM and vocational subjects but a number of HEIs continue to provide specific arts and humanities courses often combined with STEM subjects (eg chemistry and German). 'Traditional' arts and humanities courses are considered a luxury and their fees are steep. Some philanthropic giving, supported by tax breaks, provides access in these subjects for bright students from poorer backgrounds.
- 3.3.14 HEIs have built up close relationships with local economic clusters and employers for research cooperation and for training. For those subjects close to the needs of employers HEIs work with employers to create customised learning for their needs. The cooperative approach within the system is welcomed by multinational corporations. They can work with a preferred institution, or set of institutions to develop their learning needs as packages that their employees can access locally anywhere within Europe and beyond, to provide consistency with high standards. The hub and spoke model and collaborative working makes this approach very efficient. Many of the UK elite HEIs have created partnerships with, or taken over institutions within Europe, because of their brand strength internationally.
- 3.3.15 The elite universities differentiate themselves to students by the quality of the traditional education and life-outcomes. The trend towards standardisation leaves many other institutions struggling to differentiate themselves to students. In response, HEIs treat students as customers and apply the full range of customer relationship management techniques from marketing to potential students to getting feedback on the quality of the student experience and responding appropriately. In support of this approach all HEIs have a Pro-Vice Chancellor of student experience responsible for this area.



### **Importance of physical space**

- 3.3.16 While much of the study can be done from home or the workplace, the provision of high quality physical space for teaching, learning and social purposes has grown in importance to the elite universities as a differentiator.

### **Funding of post-18 learning and research**

- 3.3.17 Funding for institutions is split between the student and the State both at first and higher degree levels. A handful of institutions are privately funded. In both cases the student pays tuition fees and is responsible for his or her living expenses. The state invests in educational infrastructure, in strategically important subjects and research areas. A substantial number of State and institutional bursaries are available for poor or disadvantaged students or for strategically important subjects that cover the majority of the fees and living expenses. Subsidised loans are available to cover the fees and living expenses for better off students. Research funds are topped-up by commercial investment.

### **Regulation of post-18 learning and research**

- 3.3.18 HE strategy is set on a European level with implementation of the strategy delegated to the individual states. The UK uses this authority to maintain control over the accreditation of awarding bodies, and through the distribution of funds.

### **Size and shape of the HE sector**

- 3.3.19 Table 3-1 sets out the key elements of the UK HE context for the Beehive scenario.

### **Publishing and IP**

- 3.3.20 Academic publishing has undergone a revolution. The tightness of the economic models means that there is great pressure on the traditional publishing industry and there are some casualties.
- 3.3.21 HEIs are self-publishers of teaching and learning materials in those subjects and specialisms where they are the hub. To help drive up quality, hub materials are licensed for use by customer spokes in return for cross-funding. Publishers are often involved in the marketing to spoke organisations of the course and learning support materials developed by the hubs.
- 3.3.22 Open access publishing for research outputs has become the dominant model and is the norm for all state-funded research activities. As part of this publishers have developed new business models based around value-added services helping people exploit the vast amounts of information available.

**Table 3-1:**  
Key characteristics of the UK HE context for the Beehive scenario

Characteristic	Description
Number of teaching and learning institutions	Around 200 institutions deliver teaching and learning services; although only around 10% do so using the traditional methods of teaching and subject classifications.
Number of research institutions	There are around 20 research-led universities, which are those who emerged as the strongest as research funding came under pressure from expanding student numbers.
Number of post-18 learners	The target across the EF is for ~50% of the cohort of 18 year olds to attend a HE academic or vocational training course. The increase in the number of work-based, vocational and part-time students has driven the total number of post-18 learners to ~3.2M FTE.
Number of researchers	In total there are around 160,000 researchers in the UK. Approximately three quarters of these are in the research-led universities, with the remainder in other research institutes backed by State funding.
Number of non-UK learners and researchers	There is no restriction on the mobility of students other than cost, and the opportunity to study in English is still enough of an attraction to entice large numbers (~450,000) of European and overseas students to attend either academic courses (~10% of total student numbers) or vocational courses (~4% of total student numbers) in the UK. A number of institutions increase their income through courses targeted directly at the overseas market.

- 3.3.23 Paper text books have more or less entirely been replaced by 'eBooks' but with different approaches to selling and licensing the content. Course and learning support materials produced by the hubs typically contain those elements of the eBooks which are essential for that course. Students at the elite HEIs are still encouraged to 'read around' their subjects with comprehensive reading lists provided by the HEI. Access to these is paid for as part of the tuition fees. Additional materials can be acquired through top-up fees.
- 3.3.24 The take up of self publishing for teaching and learning materials and open access publishing for research during the 2010s and early 2020s together with the move to 'eBooks', led to the changed role for publishers.

## 3.4 'Library' services and organisation

### General

- 3.4.1 The concept of a library has undergone radical change. The move to digital resources has allowed the separation of knowledge, information and learning support services from the provision of space for teaching and learning. The provision of knowledge, information and learning support services is largely aligned with the HEI hub and spoke model in the UK. Library knowledge, information and learning support services are packaged within the learning modules with standard support offers and additional chargeable elements. For example, Oxford provides the UK-wide hub for classical studies and mathematics, and University College London provides that for biochemistry. Integration of such services across Europe is also well developed. For example, the Sorbonne acts as the lead for French language and literature studies across Europe.
- 3.4.2 Economies of scale have been achieved by either the library or the estate function taking over the delivery of all teaching and learning spaces.
- 3.4.3 HEIs offering arts and humanities courses tend to be closely integrated with museums, galleries and archives to create a richness of material to support the learner. The arts and humanities library is typically part of a local cluster of HEIs rather than necessarily a part of the HEI itself.
- 3.4.4 Special collections, particularly those related to arts and humanities subjects, are now largely the preserve of the elite HEIs and a few remaining specialist local museums and archives around the country.

### Teaching and learning

- 3.4.5 Library services at both hubs and spokes include the management of course and learning support materials and repositories. Specialist hub librarians at hubs are closely involved in the team creating course and learning support materials. These specialist librarians are experts in a subject and also in the presentation, production, licensing of course and learning support materials. Librarians at hubs provide support to students and staff on

finding knowledge and information, and access and use of course and learning support materials. Hub librarians also provide similar support through a help desk to librarians and learning support staff at spokes. Librarians at both hubs and spokes provide information literacy skills and guidance for students. This covers especially the use of search and access tools and advice on resources.

- 3.4.6 With hubs, the library service is closely aligned with, and sometimes integrated with the development of teaching and learning resources such as lectures and support materials.

### **Research**

- 3.4.7 Library services at a research hub include the management by subject librarians of research information and knowledge at both the hub and related spokes. A subject librarian typically works closely with one or more research groups, depending on the work involved.

- 3.4.8 Authors are largely in, or affiliated with, academic teaching or research hubs, or centres of excellence. Authorship is more of a collaborative than an individual activity. Authors create blogs, papers, books, journal articles and learning objects. Leading authors are often supported by a personal librarian. These are packaged together and published directly by the HEI or by a partnering publisher. The early ideas of self-publishing of research have faltered and the model now used is open publishing as the institution process has proved necessary for ensuring quality

### **Librarians and librarianship**

- 3.4.9 A divide has evolved within librarianship depending on the kind of institution a librarian works at. There are specialist subject librarians described above working at hubs and 'General Practitioner' (GP) librarians who work for both hubs and spokes. These GP librarians provide support (eg information and knowledge management, information literacy) to learners, teachers and researchers (where these work in teaching spokes). Many of these GP librarians work through an online help desk and are often freelance or part-time. Movement between the specialist and GP strands of the profession, while not uncommon, can be difficult to achieve.

- 3.4.10 There is a wide variety of specialist disciplines within librarianship. These include being an important part of the team developing course and learning support materials at a teaching hub; being a subject librarian providing information and knowledge management services at a research hub; carrying out research into further developing, for example, resource discovery; and being an IP expert etc. Many of these specialisms are employed in industry and R&D institutions with collaborative links largely to hubs. Importantly, the library manager manages a team with varied skills, many part-time or outsourced to support the learning journey. Normally, the library manager at a hub is also responsible for the IT services at the institution though these are typically provided as shared services.

- 3.4.11 Traditional librarian skills are still needed for the special collections but the merger of these holdings and the continuing economic pressures means that there are very few of these.
- 3.4.12 The marked change in library careers has led to changes in both the membership bodies and librarian training. There are essentially three membership bodies: one for each of librarians, hub libraries and spoke libraries. These have been established following the coming together of breakaway hub libraries from SCONUL with research hub libraries from RLUK. Those intending to become hub librarians often have an IT or information and knowledge management background, while GP librarians have a more traditional background.

### 3.5 Early indicators

3.5.1 Efforts to improve social justice and social mobility might suggest that the **Beehive** scenario might be occurring. Evidence for this might be:

- the enactment of relevant legislation, strong public support for inclusion or the state making significant funding available to achieve these aims in HE;
- a significant amount of content being provided through shared services (eg at a national or regional level);
- large institutions marketing teaching and learning materials to smaller institutions;
- realignment of sector representative bodies to match the hub and spoke model and/or extensive collaboration/merger with similar bodies within the EF.



## 4 Walled Garden Scenario



A Walled Garden is an oasis, shut-off from the outside world. Inhabitants of the garden neither know, nor care much about the world beyond the garden's comforting walls. After all, how could the flowers out there possibly be any better than those within the garden?

### 4.1 Introduction

- 4.1.1 HEIs in this scenario are 'Walled Gardens'. They are insular and inward-looking, isolated from other institutions by competing value systems. Provision of information services in this world is as much concerned with protecting their own materials for others as it is in enabling access.

### 4.2 The global environment

#### General

- 4.2.1 Following the global recession of the early 21st century, cuts in investment to help reduce the national deficit meant that the UK's influence waned and it became ever more isolated. Indeed, the UK drifted from the EU, particularly after the Euro collapsed in the century's second global recession, and the UK itself fragmented as continued devolution turned to separation and independence. The process of isolation was accelerated by the growing strain on natural resources and conflict over energy. Technological advances, whilst allowing some of these challenges to be overcome, have also brought problems of their own.
- 4.2.2 The ability for people to connect, to an increasing extent exclusively, with like-minded individuals around the world has led to an entrenchment of firmly held beliefs, closed values and, ultimately, the loss of any sense of universal knowledge. Just as isolationism is the norm in international relations, so too is social and mental isolationism, as people seek the security and comfort of the known and familiar.

#### Values

- 4.2.3 The number of different groups has led to a diverse closed value system and the sense of universal knowledge has been lost. Sharing of knowledge between groups is possible but requires significant contractual and financial negotiation.

#### Political

- 4.2.4 The world is politically fragmented. The British Isles increasingly steered a course of 'splendid isolation' throughout the first half of the 21st century, and plays no significant role in Europe where there is increasing economic and political fragmentation. None of the superpowers of USA, Russia or China managed to establish world hegemony, riven by internal disputes and by conflicts and competition.

**Economic**

- 4.2.5 Asia has risen as a major economic power, not just in manufacturing but in the service and knowledge economies too. The nose dive of the Western economies following the 2007-2009 recession hit the UK particularly hard, but fortunately the British Isles has achieved reasonable self-sufficiency through technological advances and renewable energy.

**Societal**

- 4.2.6 Global communications have allowed people to connect with like-minded individuals around the world, which has led to an entrenchment of firmly held beliefs, including religious, environmental, political, ethnic and even intellectual groups. The result is a world with a diverse closed value system, and the sense of universal knowledge has been lost. There is also less social mobility than in the first half of the 21st century.

**Technological**

- 4.2.7 Technology is woven throughout daily life, and has allowed some of the challenges faced earlier in the century to be overcome. For example, the heavy investment in renewable power made early in the century both fuels the domestic economy and many peoples' desire to be closed off from the social discontent felt about energy rationing elsewhere in the world. Moreover, advances in nanotechnology and micro-fabrication have helped the British Isles achieve reasonable self-sufficiency.

**Legal**

- 4.2.8 The rise of the closed value system has had a negative effect on the open access movement earlier in the century. The legal framework defining IP law has evolved but remains firmly in place. Technology has advanced to help combat illegal replication and distribution of content, but it remains a battlefield for publishers, authors and artists of a particular societal group and information users in other groups.

**Environmental**

- 4.2.9 The effects of climate change are painful and undeniable. However, heavy investment by the home nation governments in energy from renewable sources, subsidies for green technologies, recycling, more energy efficient housing and fuel efficient cars have helped households adapt to the harsh realities of high energy prices.



## 4.3 British Isles HE context

### Fragmentation

- 4.3.1 The political and societal changes have resulted in a highly fragmented HE system, in which the legacy of the free market reforms of the early 21st century is visible in the variety of funders, regulators, business models and organisations providing higher education. These providers are driven by their specific values and market specialisation and are little interested in other areas. Their values can include profit-making, but also cover a spectrum from 'traditionalist' education to vocation and business-specific and even religious or political creeds.
- 4.3.2 Industry and business work with academia, and vice versa, frequently and productively, but only for so long as their ideologies are compatible. This often means that courses have a vocational element, but industry influence also extends to the sponsorship of entire institutions, where students must go if they ever wish to have a career in that company or industry. The role of the state tends to be limited to specifying 'grand challenges' of national importance, which go some way towards galvanising the sector.

### Difficulties of collaboration

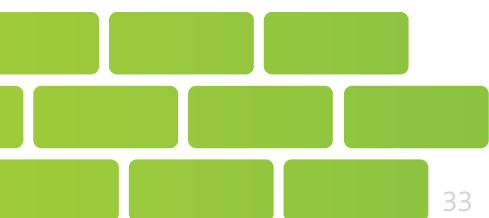
- 4.3.3 Collaboration between institutions is not uncommon but normally occurs only between institutions with compatible values. The negotiations necessary to implement a collaboration agreement are complex. In the teaching and learning context collaboration agreements may enable students to conduct their courses across more than one institution.
- 4.3.4 Other institutions that are more fundamental in their beliefs prefer to keep entirely separate, as do the ancient elite universities who tend to work together across the world to try and uphold their traditional values. Students at these institutions are pushed and coached hard and usually excel, but do not receive much exposure to other groups' cultures.
- 4.3.5 This diversity of provision, approach and fundamental values also has a large affect on the student experience at each institution. Face-to-face interaction is highly valued, especially at the traditional universities, but educational technologies are sophisticated, and are practical solutions for learners who are more remote or are doing vocational studies. Students typically go to institutions based on either their career aspirations, or else on more fundamental beliefs. The lucky elite continue to attend the exclusive traditional educational institutions.

## Teaching and learning

- 4.3.6 The academic role of educator concerns developing and writing learning objects and supporting materials and using these to support teaching. However, 'writing' learning materials now means much more than drafting lecture slides; the full array of technologies available in a multimedia/hypermedia environment that is also a Walled Garden means that the educator more closely resembles a collator than a creator of material, often generating mash-ups rather than texts. Learning materials constructed in this way may often look more like training manuals than scholarly academic texts. The written or constructed output is the property of the organisation for which the educator works, and may be sold or franchised. For the organisation, the output's importance is both reputational and financial in that it enhances the organisation's status and provides a revenue stream.
- 4.3.7 Students are most usually given the learning material necessary for the completion of their studies and/or training; independent research not using the approved sources is normally discouraged.
- 4.3.8 Teaching is mostly handled by professional lecturers who devote all their time to teaching.

## Research

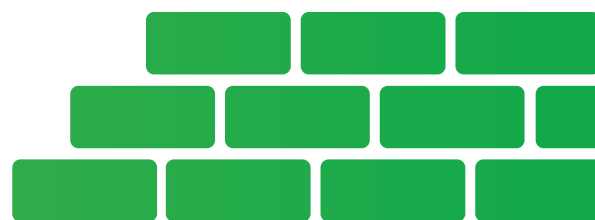
- 4.3.9 Researchers are normally employed to carry out research and not teach thus freeing up researcher time. However, these benefits come at a cost as organisations are restricted by their sponsors in the research they can undertake and, hence, specify the work of the researchers they employ, and monitor performance and productivity carefully. In effect, the research agenda is very pre-determined, programmatic, and rarely curiosity-driven. Its research outputs often more closely resemble market intelligence than disinterested research.
- 4.3.10 Whilst the sector is highly fragmented, there is a productive and well-focused research environment. Blue sky research is conducted and mixed teaching and research institutions. The research-only institutions tend to focus on blue sky research and the mixed institutions tend to exploit research to exploit the blue sky research and develop near-market products and services with industrial and commercial partners with the same values as themselves.
- 4.3.11 'Grand Challenges' of national importance specified by the government go some way towards galvanising the sector. However, the majority of funding comes from single-issue groups or institutional sponsors. This funding is secured by specialist revenue generation teams working on behalf of the institution, thereby freeing researchers from the perpetual pursuit of research funds.



- 4.3.12 In addition to their success in their particular specialty and prowess at raising funds, the research-only universities also vie to offer researchers a competitive advantage by providing access to a richness of resources, at least for the duration of their employment. Resources are bought as needed to align with the corporate research objectives of the HEI. Because of the corporate nature of the resources portfolio, inductions for new researchers are compulsory so researchers can take maximum advantage of the available resources, though of course they also still learn from peers.
- 4.3.13 The outputs of research are corporately owned and the copyright held by the institution. As research data is produced in enormous quantities, there is a strong emphasis on securing and preserving this data for subsequent use and even sale, by the institution and the researchers it contracts. In this case 'security' refers to information protection and secrecy as much, if not more, than it does to information collection and assurance. The hacking of university systems on 'public information' grounds in the early part of the century morphed into more sinister industrial espionage-style attacks in line with the general societal shift to isolationism and competition. The result has been that standards and procedures for information security are rigorously enforced by institutions.
- 4.3.14 Research collaboration, both UK and internationally, can be strong within their specialisations and value systems but strained outside of it. Collaboration is frequently, however, outweighed by competitive pressures – for sponsors, for the best researchers, and for influence. Access to research resources is a key feature of the collaboration agreement, and is usually only for the duration of the collaboration.
- 4.3.15 Given the complexity of the variety of support systems, some information professionals have become more generic support service navigators on behalf of researchers. Such is the complexity of navigating and gaining access to content, particularly that produced by other institutions, that these information professionals play an important part in the research process for many researchers. The 'ease of use' of information resources is one more area where institutions compete to distinguish themselves.

### **Publishing and IP**

- 4.3.16 The publishing and creative content industries wage a constant technological and legal battle to protect their IP and copyright from piracy and infringement. Thanks to their political and financial clout, combined with innovative business models from new entrants to the sector, they have, to a large extent, succeeded in keeping creative publishing a profitable and thriving industry. This is despite a strong Open Access ideological movement achieving significant success in certain areas of software and public information but excluding the HEI context.



- 4.3.16 HEIs own and exploit the IP of research, teaching and learning materials. In-house publishing and control of teaching and learning materials is important and is a lucrative income stream. The emphasis is on securing and preserving data for subsequent use and re-use within the group and even for sale to other groups. Material is nearly always published in electronic-only format, and is heavily protected by technological and legal instruments to prevent misuse. Lawsuits over disputed IP and improperly used material are common and go both ways: publishers suing academics and institutions over misuse, and vice versa.
- 4.3.16 The 'old fashioned' model of peer-reviewed academic publishing is only kept alive by a few elite institutions. The remainder prefer their own metrics of researcher performance and use their own digital distribution channels.

### **Funding of post-18 learning and research**

- 4.3.19 There is a mixed funding model for learning and research, with investment coming from public funds, student self-funding, sponsors and businesses. There is some cohesion between the home nations, but education is largely treated separately.
- 4.3.20 The importance of public funding in education has declined. Institutions can choose to receive public money for learning and research, but funding is concentrated on those areas where the home nation governments consider they hold a competitive advantage: eg quantum bio computing, military applications of nanotechnology and societal change.
- 4.3.21 Institutions are frequently associated with commercial and not-for-profit sponsors. In these instances the institution's sponsors cover the costs, often providing a grant to students in return for a commitment of some kind (eg future employment, endowments).

### **Regulation of post-18 learning and research**

- 4.3.22 If an institution takes public money it is regulated and inspected by its home nation government. Otherwise it is independently regulated by its own sponsor.

### **Size and shape of the HE sector**

- 4.3.23 The following table sets out the key elements of the UK HE context for the Walled Garden scenario.

## **4.4 'Library' services and organisation**

### **General**

- 4.4.1 In this fragmented, competitive world, 'libraries' are aligned to individual institutions, or networks of value systems; library services are available at a sector level only for the publicly-funded minority of institutions. Just as institutions choose to work only with those that share their values, they also rigorously enforce who has access to their academic output. Nearly all institutions, therefore, have in-house services run out of the library that fulfil this role.

**Table 4-1:**  
Key characteristics of the UK HE context for the Walled Garden scenario

Characteristic	Description
Number of teaching and learning institutions	There are ~300 institutions across the British Isles that deliver learning, teaching and research, ~170 of which solely focus on teaching and learning, including applied and vocational. The range of institutions is more diverse than it was at the turn of the century. Institutions are driven by their specific values and market specialisation, eg the Centre for Nanotechnology Studies, the University of Environmental Studies and the Buddhist Institute. Many of the ancient, elite institutions still exist as specialist educational and research organisations, upholding traditional values.
Number of research institutions	There are ~90 institutions that conduct research and learning in the same institution, and another 40 research-only institutions.
Number of post-18 learners	The total number of post-18 learners is ~2.4M FTE.
Number of researchers	There are around 135,000 researchers (students and staff) in the UK.
Number of non-UK learners and researchers	The number of non-UK students has fallen sharply since the turn of the century, with currently 12,000 individuals from the EU and 5,000 people from overseas active in UK institutions. This results from the global isolation of the UK, the increased availability of English-language non-UK institutions and the home nations' focus on home students.

- 4.4.2 In keeping with the focused nature of HEIs, libraries also find themselves becoming increasingly specialised around specific disciplines and services (eg specialist STEM libraries serving students, researchers, NHS and business). Some institutions that have become highly specialised have sold or otherwise divested themselves of their 'non-relevant' holdings and physical special collections, or now house them off-site.
- 4.4.3 Libraries serve the goals of their sponsor institution, and are fiercely protective of their IP. This holds for both research outputs, for which they often act as publisher, and for teaching materials. Procurement, dissemination and restriction of knowledge all present special challenges in this future.
- 4.4.4 The rise of libraries for specific value/geographical groups has meant that the importance of the British Library has declined; it is now called the National Library of England. Another example is the establishment in Truro of a Celtic institute to research and preserve language, history and culture.
- 4.4.5 The majority of libraries, and librarians, also exhibit a defensive mentality mirroring that of individual HEIs jealously guarding 'their' content for the benefit of approved users. During the transition there was an underground movement of older generation librarians that attempted to provide access to resources across value systems. However, this collapsed after enforcement of the contractual obligations to their employers to maintain confidentiality.
- 4.4.6 Librarians commonly have strong technical skills as the majority of their work is in the digital realm. This includes technical abilities in the area of information security in order to be able to safe-guard their institution's proprietary information.

### **Teaching and learning**

- 4.4.7 The physical space traditionally associated with information services and the old-fashioned 'library' continues to be valued and in some cases has increased in importance as a social learning space. However, these learning spaces are not always provided by the library. In particular, the more vocational and business oriented institutions are more creative in their attitude to the provision of physical working environments.
- 4.4.8 The learning materials created by educators employed by the institution are that institution's property. The library has responsibility for ensuring materials are deposited with them, enforcing corporate standards on format and style, and for distributing and making the material available for approved users. Given that students are usually given the learning materials they need, the student support role of the library is largely in directing students towards the approved resources. Information literacy training is especially focused on information security.

## Research

- 4.4.9 A very important part of the role of library services in the research sector procuring external content, which usually involves complex negotiations with external publishers and other HEIs in order to secure access to their content. These negotiations are handled by a team that includes support from specialist subject librarians or information professionals.
- 4.4.10 Since most researchers usually work to contract, as directed by the HEI or its sponsors, they often work in teams that include an information professional. At the start of a new research activity, the 'personal librarian' researches and assembles relevant background material into briefing packs for the research team and also has responsibility for group communications and ensuring IP and commercial secrets are protected. Their less well-known function is to keep up to date with developments in other institutions through more nefarious means.

## Librarians and librarianship

- 4.4.11 Beyond 2020, a 'librarian' describes a variety of information-focused roles, which are not tied to a physical building – they are embedded within different areas of an institution. The roles for information professionals in this scenario include working closely with course providers to present, publish and sell their content; as 'intelligence gatherers' for the institution; as security and IP enforcers; and as part of research teams helping researchers find, use and manage information.

## 4.5 Early indicators

- 4.5.1 Early indicators for the **Walled Garden** scenario would be that there is a move towards a more closed world. This might be:
- a strong trend away from social meritocracy. For example, this could be by selecting students on a cultural basis, increased antipathy between the groups that make up the UK or a breaking down of the state because citizens show more loyalty to pan-state groups.
  - institutions refusing to share content with other institutions;
  - an increase in content which is specific to a particular value group;
  - content provision moving away from any shared service aspects of content acquisition (eg the withdrawal of JISC Collections from the market);
  - fragmentation of bodies representing either institutions or librarians with subsequent collapse or merger with bodies representing a similar value network.



# A Scenario comparisons

A.1 This Annex tabulates the key characteristics of and differences between the scenarios. These are useful when applying the scenarios to strategic planning problems.

**Table A-2:**  
Key characteristics of the UK HE environment by scenario



## Wild West

	Market/state role in He	Regulation	Size/shape
Wild West	<p>HEI is provided by a competing mix of state and private organisations. Funding of learning is from the learners, with scholarships from business and some philanthropy. Elite HEIs provide an education for those who can pay and attract exceptional students via scholarships from endowments. Students are able to buy 'bundles of services' from different institutions, with course fees distinct from any other services they may purchase. The elite HEIs have grown their endowment funding.</p> <p>Funding for research is spread between industry, national and local (regional) government. Industry is led by tax breaks rather than grants for research with societal or economic focus.</p>	<p>There is little national regulation of learning. Private company league tables are dominant in setting expectations of value. Research is regulated, where it is regulated at all, within a cluster related to an industry or locality. Regulation exists where society demands it (eg health).</p>	<p>Multi-tiered HE system: ~20 elite academic and research-intensive institutions, 3 major groupings of state vocational institutions offering courses through 40 – 50 institutions in regional clusters and ~25 new large private sector entrants. Overall there are ~3M FTE students and ~100,000 European and overseas students concentrated at research-intensive universities.</p>



## Beehive

Beehive	<p>HEI is provided largely by the state with a small number of private institutions. HE funding is split between the student and the State both at first and higher degree levels. A handful of institutions are privately funded. The student pays tuition fees and is responsible for living expenses. Research funds topped-up by commercial investment.</p> <p>The state invests in educational infrastructure, and in strategically important subjects and research areas. Subsidised loans are available for all. State and institutional bursaries are available for poor or disadvantaged students or for strategically important subjects.</p>	<p>HE strategy is set on a European level with implementation delegated to the individual states. The UK maintains control through the accreditation of awarding bodies and the distribution of funds. Research quality is regulated by internationally-recognised government-controlled 'kite marking'.</p>	<p>~200 institutions deliver teaching and learning services. Of these ~20 are research-led universities. Overall there are ~3.2M FTE students. ~450,000 European and overseas students on academic and vocational courses.</p>
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## Walled Garden

Walled Garden	<p>HEI is provided by a mix of state and group organisations. A mixed funding model exists for learning, teaching and research, with investment coming from public funds, student self-funding, sponsors and businesses.</p> <p>Importance of public funding has declined and is focused on areas where the home nation governments consider there is a competitive advantage.</p> <p>Sponsored institutions often provide grant to students in return for a commitment to work for the sponsor.</p> <p>'Grand Challenges' of national importance help galvanise research but majority of funding is from single-issue groups or institutional sponsors.</p>	<p>If an institution takes public money it is regulated and inspected by its home nation government. Otherwise it is independently regulated by its own sponsor.</p>	<p>~300 institutions fragmented by values and market specialisation for learning, teaching and research, ~170 of which solely focus on teaching and learning. Many of the ancient, elite HEIs are still specialist educational and research organisations, upholding traditional values. ~2.4M FTE students with ~17,000 European and overseas students.</p>
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Teaching and learning	Research	ICT	Publishing and IP
<p>The notion of the degree has undergone significant change. Many students study locally in their first year. Some students apply to or are recruited by the elite HEIs to further their study after this.</p> <p>Much learning is packaged with digital content, exercises and support for learning being available at a fixed price, with top up services available. Many students may be working while undergoing this learning transition.</p> <p>The private sector provides education services, both in competition and in collaboration with Academic Institutions.</p> <p>Learning is a social and a socialising experience. Group study, group projects and mutual support is necessary and typically provided using local spaces.</p>	<p>Long-term, blue sky research is concentrated in a few research-intensive HEIs. Near to market, or knowledge transfer is partnered between commerce and academic institutions rather than being embedded within them. Local teaching and learning institutions build partnerships with research-intensive HEIs in the UK and globally depending on the local economic activity.</p> <p>Particularly for multi-disciplinary and inter-disciplinary research fields, digitisation of information offers the potential for new forms of appraisal on an open basis. A research project in health might for interest be multiply peer reviewed by the medical community, an ethical community, an economic community and a social sciences community.</p>	<p>Provision of ICT infrastructure is outsourced to commercial vendors across the UK, Europe and BRIC, depending on the subject area. No supplier has yet obtained global dominance. The market sets the interoperability standards.</p> <p>Information services are largely bought in. Students choose information/ICT services they want to support their learning/research.</p>	<p>Traditional academic publishers exist alongside self publishing and new peer review approaches. There is a mix of business models, including licensing, value added services around open access and can be at the institutional or individual level. Protection of IP is a constant battle against piracy.</p>
<p>HEIs operate on hub and spoke basis by subject. Subject specialists seek to be a hub and franchise out, otherwise provision outsourced to specialist hubs.</p> <p>HEIs work closely with local economic clusters and employers for research cooperation and training. Multi-nationals work with a set of institutions across the world to develop courses that employees can access locally anywhere. Because of their brand strength many elite HEIs have partnerships with, or have taken over, institutions within Europe.</p> <p>Elite research-intensive HEIs continue to offer traditional higher education across STEM subjects and arts and humanities. Most other HEIs offer only STEM and vocational subjects.</p> <p>HEIs differentiate themselves through the 'student experience' and the quality of the space for teaching, learning and social purposes.</p>	<p>Europe's continued strong focus on the knowledge economy provides an environment which allows research to flourish although in the UK context the increased focus on student employability reduces the overall size of the research base while increasing focus on areas of strategic importance.</p> <p>Research HEIs are notionally autonomous but remain accountable to funding agencies.</p> <p>Collaborations across institutions and with commercial research. Information sharing with other institutions and the public are standard.</p> <p>The hub and spoke model also applies for research. Blue skies and early development research is concentrated in the hubs (largely elite HEIs). Near-market research or development is typically carried out within spokes. The latter tend to be departments within HEIs with a relationship with local commerce/industry.</p>	<p>A single state-provided infrastructure meets most, if not all, HEI business process needs; library information services are no exception. Information content is normally the responsibility of specific specialist hubs. Negotiation with commercial providers is at state level.</p>	<p>HEIs are self-publishers of teaching and learning materials in those subjects and specialisms where they are the hub. To help drive up quality, hub materials are licensed for use by customer spokes in return for cross-funding.</p> <p>Open access publishing for research outputs has become the dominant model and is the norm for all state-funded research activities. As part of this publishers have developed new business models based around value-added services helping people exploit the vast amounts of information available.</p>
<p>HE is highly fragmented by values and market specialisation. Industry and business, and academia work together; courses often have vocational element. Industry sponsors institutions and students must attend to work there.</p> <p>Institutions normally collaborate where they have compatible values; otherwise complex negotiations ensue.</p> <p>Fundamentalist institutions keep themselves apart. As do the ancient elite HEIs who only really engage with similar institutions across the world to uphold traditional values.</p>	<p>There is a productive and well focused research environment.</p> <p>Use of professional lecturers, frees up researcher time. Organisations are restricted by sponsors in the research they can undertake. Research outputs resemble market intelligence rather than disinterested research.</p> <p>Elite research universities vie to offer researchers a competitive advantage by providing access to a richness of resources.</p>	<p>ICT is usually provided on an in-house basis. The fragmentation resulted in the failure of shared services and cloud computing to meet their early promise.</p>	<p>The open access movement has failed in the HEI context. HEIs own and exploit IP of research and teaching and learning materials. In-house publishing and control of teaching and learning materials is important and is a lucrative income stream.</p> <p>The emphasis is on securing and preserving data for subsequent use and re-use within the group and even for sale to other groups. IP is fiercely protected by technological and legal instruments. Lawsuits over IP are common.</p> <p>Peer-review survives at a few elite HEIs. The rest prefer their own metrics for researcher performance and use their own digital distribution channels.</p>

**Table A-3:**  
Key features of library services and organisation by scenario



**Wild West**

**General**

Libraries exist independently of institutions as shared resources and new 'library' models have emerged.

In 2011 a librarian was someone who worked in a library; now it is difficult to define common skills and values. There are now many more disciplines, specialisations and opportunities. Librarians have exploited the opportunities through merger, competition or cooperation with other groups.

There is still a need for long-term preservation and curation of non-digital content. This has led to regionalisation and/or specialisation and a blurring of the boundaries with museums and other cultural institutions.

The need for the library as a physical space continues; the relationship between the library space and as a service is complex. Some institutions have sold and leased back their space to chains that run physical spaces as social learning centres.

The separation of space from the institution supports students studying different modules from different institutions. Front-line support in these spaces enables a potential student to see what modules are available from which institution and on what terms.

**Teaching and learning**

The ageing society provides an opportunity for these new branded entrants and a revitalisation of adult learning. For instance, an individual interested in seeing if there was a local interest in a group studying together could seek out others who might be interested in learning together at a local 'EzeeU'. Some of these opportunities might themselves attract sponsorship. A travel company might sponsor language courses through EzeeU to support its business

**Research**

When a new research project is being set up, the 'librarian' for the project is involved from its inception to ensure that the appropriate mechanisms are in place to support the information needs of the project and the wider community. The librarian calls upon a wide variety of library specialists to support the project on a consulting basis.



**Beehive**

Knowledge, information and learning support services are now separated from the provision of space for teaching and learning. Provision of the former is largely aligned with the HEI hub and spoke model in the UK. Library knowledge, information and learning support services are packaged within the learning modules with standard support offers and additional chargeable elements.

Economies of scale have been achieved by either the library or the estate function taking over the delivery of all teaching and learning spaces.

HEIs offering arts and humanities courses tend to be closely integrated with museums, galleries and archives to create a richness of material to support the learner. The arts and humanities library is typically part of the cluster around an institution rather than necessarily a part of the HEI itself.

Special collections, particularly those related to arts and humanities subjects are now largely the preserve of the elite HEIs and a few remaining specialist local museums and archives around the country.

Hub librarians are closely aligned with and/or part of the team creating teaching and learning resources. They also provide support to students and staff on finding knowledge and information, and access and use of course and learning support materials. Hub librarians provide similar support via a help desk to librarians and learning support staff at spokes. The majority of support is through an on-line helpdesk.

Hub librarians are experts in across many subjects and in the presentation, production and licensing of course and learning support materials.

Library services at both hubs and spokes include management of course and learning support materials and institutional repositories and provision of information literacy skills.

Research hub library services include management by subject librarians of research information and knowledge at the hub and related spokes. A subject librarian typically works closely with one or more research groups, depending on the work involved.

Except for special collections, resource discovery is essentially a user activity with little input from librarians

Authors are largely in, or affiliated with, academic teaching or research hubs, or centres of excellence. Authorship is more a collaborative than an individual activity. Materials are published by the HEI or a partnering publisher. Leading authors effectively have a personal librarian.



**Walled Garden**

'Libraries' are aligned to individual institutions, or networks of value systems. Library services are only available at a sector level for the publicly-funded minority of institutions. Institutions rigorously enforce who has access to their academic output and therefore tend to have in-house services for this role.

Many libraries and librarians jealously guard 'their' content for the benefit of approved users. However, an underground movement exists, which attempts to provide access to resources across value systems.

Libraries are increasingly becoming specialised around specific disciplines and services. Some have sold-off or discarded 'non-relevant' holdings and physical special collections, or house them off-site.

The importance of the British Library has declined; it is now called the National Library of England.

Physical space associated with information services and the old-fashioned 'library' continues to be valued and in some cases has increased in importance as a social learning space. The spaces are not always provided by the library; the more vocational and business oriented institutions are more creative physical working environments.

The learning materials created by educators employed by the institution are that institution's property. The library has responsibility for ensuring materials are deposited with them, enforcing corporate standards on format and style, and for distributing and making the material available for approved users. Given that students are usually given the learning materials they need, the student support role of the library is largely in directing students towards the approved resources.

The complexity of discovering and accessing content, particularly from other institutions, means information professionals play an important part in the research process. Negotiations are handled by a team including subject librarians or information professionals.

'Ease of use' of information resources is one area where institutions compete to distinguish themselves.

Researchers usually work to contract, as directed by the HEI or its sponsors, so often work in teams that include an information professional. The 'personal librarian' forms relevant background material into briefing packs, has responsibility for group communications and IP protection.

## Librarians and librarianship

Librarians' careers are more varied than in 2011. Many have specialist roles or are embedded in academic teams. Librarians often work for multiple institutions and are freelance, part-time and/or work from home. There is considerable crossover with information management.

Librarians are embedded in research projects as members of the research or teaching team with specialist subject knowledge. The large scale of information capture, process and storage mean that new areas of 'librarianship' have developed. Jobs in elite institutions are highly competitive and sought after by specialist librarians.

Support to academics is extensive. Within the elite institutions 'personal librarianship' services are a key selling point in recruiting star teachers or researchers.

Librarians provide 'front-line support' to 'users' of library services. Design, organisation, IP protection and curation/conservation combine what were seen in 2011 as IT with librarian skills.

The library manager has a broad role and runs a diverse set of professionals. They are, or report to, a Pro Vice Chancellor of resources. Many have no responsibility for physical spaces.

Entry to the profession is through a short course followed by an increasing array of specialist qualifications and on-the-job experience.

A divide has evolved within librarianship depending on the kind of institution. Some hub or spoke librarians provide support (eg information and knowledge management, information literacy) to learners, teachers and researchers, often through an online help desk. Specialist research hub librarians provide information and knowledge management services for researchers. Specialist teaching hub librarians are an important part of the team developing course and learning support.

GP librarians are freelance or part-time. Movement between the two strands, while not uncommon, can be difficult to achieve. Many specialist librarians are employed in industry and R&D institutions with collaborative links to hubs.

Hub librarians often have an IT or information or knowledge management background, while GP librarians have a more traditional background.

The library team has varied skills; many are part-time or outsourced. Normally, the hub library manager is responsible for IT services at the institution.

Traditional librarian skills are still needed for special collections; the merger of these holdings and continuing economic pressure means there are few of them.

Librarian training reflects the divide as do the membership bodies.

The term 'librarian' describes a variety of information-focused roles, which are not tied to a physical building – they are embedded within different areas of an institution. The roles for information professionals in this scenario include working closely with course providers to present, publish and sell their content; as 'intelligence gatherers' for the institution; as security and IP enforcers; and as part of research teams helping researchers find, use and manage information.

Librarians commonly have strong technical skills as the majority of their work is in the digital realm. This includes technical abilities in the area of information security in order to be able to safe-guard their institution's proprietary information.

## B Baseline HE characteristics

B.1

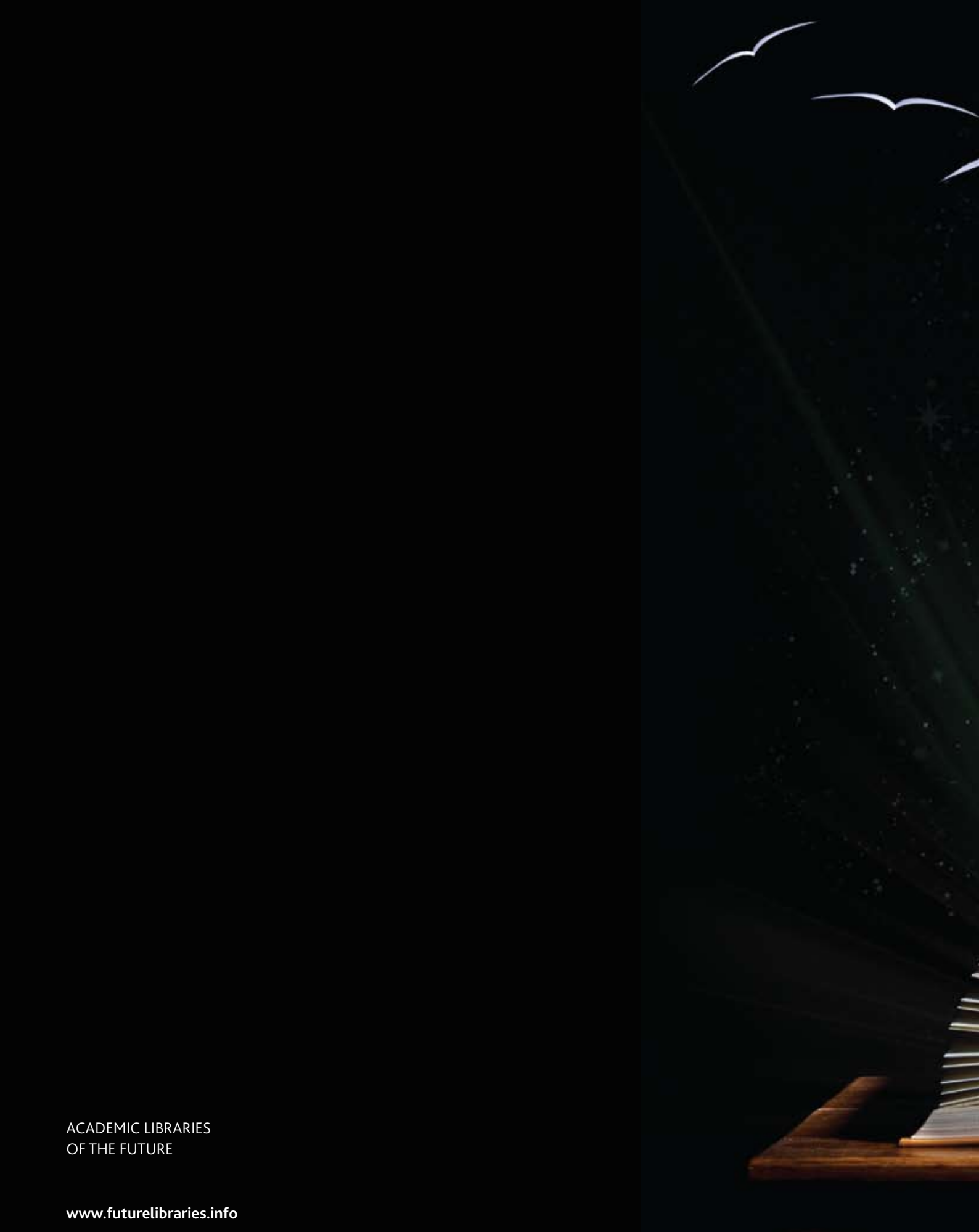
Table B-1 summarises the baseline key characteristics of the UK HE context in 2008/09 for comparison with the key characteristics presented for each of the scenarios.<sup>6</sup>

**Table B-1:**  
Key characteristics of the 2008/09 UK HE context

Characteristic	Description
Number of teaching and learning institutions	Around 300 institutions deliver teaching and learning services.
Number of research institutions	There are around 40 research-led universities.
Number of post-18 learners	Around 40% of the cohort of 18 year olds attends HE. The total number of post-18 learners is £2.4M FTE.
Number of researchers	In total there are around 195,000 researchers in the UK.
Number of non-UK learners and researchers	There are around 369,000 overseas students from outside the EU and from other EU countries.

<sup>6</sup> See the HESA website: [www.hesa.ac.uk](http://www.hesa.ac.uk) (accessed 16 February 2011).





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