



Universities UK

# Data as strategic asset

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Universities UK

- » What do we mean by a ‘data as a strategic asset?’
- » What data is available to use?
- » How can data deliver benefits?

# Efficiency and effectiveness in context

## ECONOMIC OUTPUT



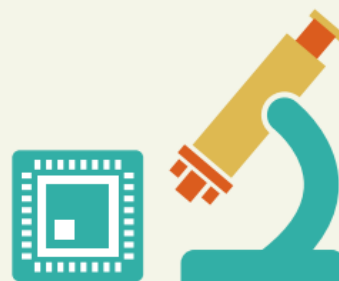
In 2011–12, the higher education sector generated over **£73 billion** of output (both direct and indirect effects).

## CONTRIBUTION TO NATIONAL ECONOMY

The UK's higher education sector makes a significant contribution to the national economy.



Higher education contributed **2.8% of UK GDP** in 2011 (up from 2.3% in 2007)...



... and generated **2.7% of all UK employment** in 2011 (up from 2.6% in 2007).



### UNIVERSITY JOBS

UK universities employed **378,250 people** in 2011, just over 1% of all UK employment in 2011.



### JOBS IN THE ECONOMY

For every **100 full-time jobs** at universities, another **117 full-time jobs** are generated in other sectors of the economy.

## IMPACT OF SPENDING

University spending has a big impact. Universities generate **more GDP per unit** of expenditure than other sectors including health, public administration and construction.



**757,268**  
jobs

### JOBS GENERATED

In 2011–12 the higher education sector generated **757,268 full-time** equivalent jobs.



### UNIVERSITY REVENUES

In 2011–12, **less than half** of all revenue to universities was from public sources.

***“Drowning problems in an ocean of information is not the same as solving them”***

*Ray E. Brown*

# Example:

## How can data help drive efficiency?

- » Huge range of data available to help improve performance
- » Data can help universities to be strategic in what they do and also in how they do it.
- » BUT: measuring alone does not bring benefits – “weighing the pig doesn’t make it fatter”
- » Data can help to identify a challenge, and to design a solution.

# What data is available to universities?

- » Public and government data
- » Higher education/sector data
- » Institutional data

# Public and government data sets

There are further datasets used by institutions and sector bodies, some of which are combined to enhance meaning. These include:

- » Multiple Deprivation Index (Multiple)
- » Pre University Data / National Pupil Database (Department of Education)
- » Country Profiles (International Labour Organisation)
- » The Future of Jobs and Skills (UK Commission for Employment & Skills UKCES)
- » Employer Perspectives Survey (UKCES)
- » Employer Skills Survey (UKCES)
- » Workforce Jobs by Industry (Office of National Statistics /Nomis)
- » Graduate Labour Market (Department for Business, Energy and Industrial Strategy)

- » Data is collected on all aspects of the UK HE landscape, which includes information about:
  - » Students, staff and graduates
  - » Finances and estates
  - » Academic departments and courses
  - » Public engagement and commercial enterprises.
- » Data is collected by the Higher Education Statistics Agency
  - » Sector-owned body
  - » Standards, data requests
  - » Range of 'statutory customers' – trusted, regulatory role
- » And this sector specific data is used to enhance decision-making and:
  - » Enable strategic planning
  - » Inform policy making (internal and external)
  - » Advance academic and commercial research
  - » Understand social and economic trends
  - » Support prospective students' decision making



# Institutional data from a range of sources



TIMETABLES



ADMINISTRATIVE  
DATA



APPLICATION AND  
ADMISSIONS DATA



RESEARCH DATA



FINANCIAL DATA



PLANNED WORK



MAPS, ESTATE AND  
FACILITIES DATA



STUDENT AND  
PERFORMANCE DATA



STAFF DATA



COURSE DATA



ENVIRONMENTAL  
DATA



ALUMNI AND  
HISTORICAL DATA

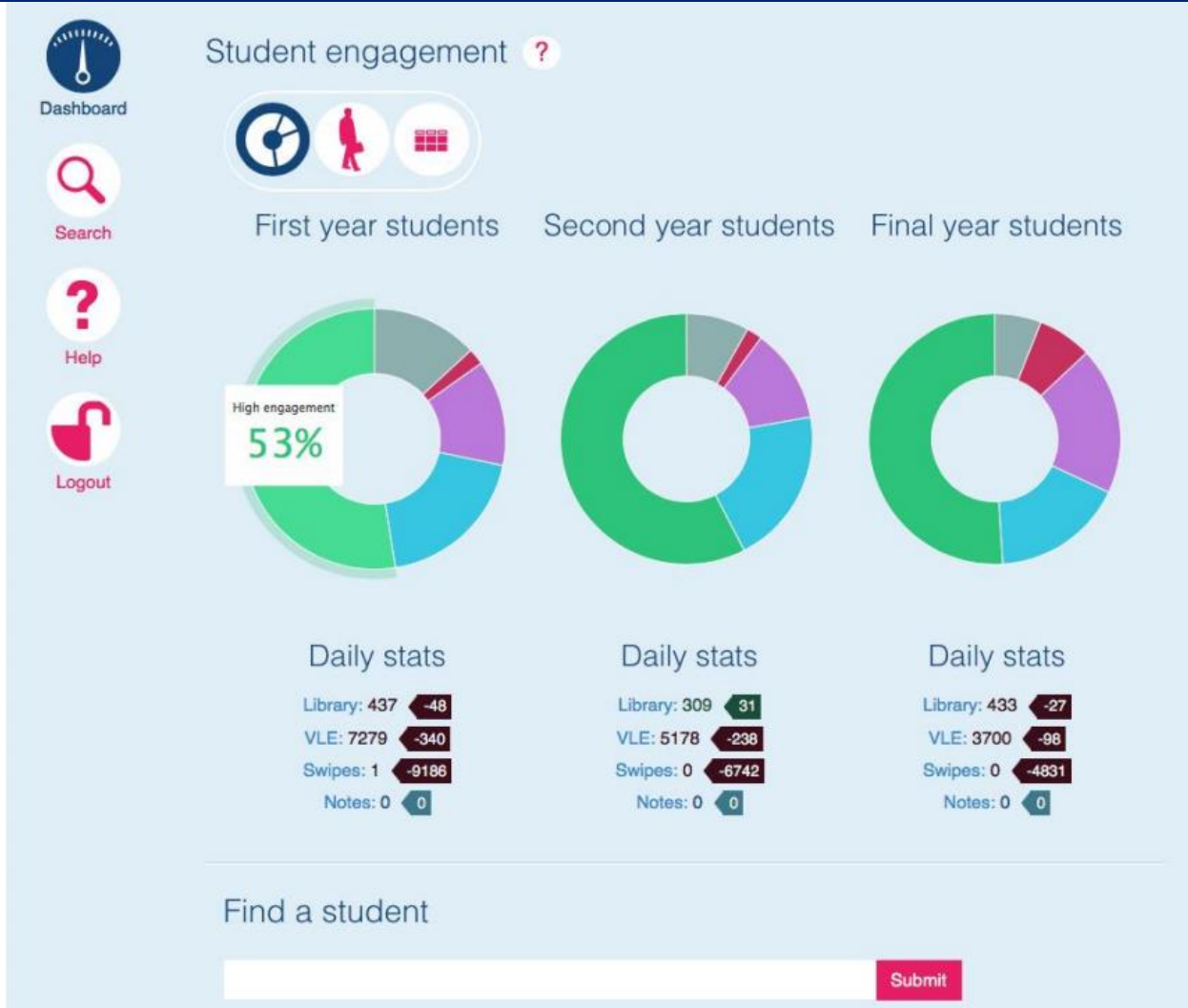
Source: Higher Education  
Commission (2016) *'From  
Bircks to Clicks'*

# Using data to deliver strategic benefits

- » So we have access to huge amounts of data – how do we make sense of this?
- » Huge range of potential uses:
  - » Benchmarking performance
  - » Identifying and delivering cost savings
  - » Improving our effectiveness
  - » Accountability, quality, regulation
  - » Making the case for higher education
- » How do we turn it in to a strategic asset?
- » Examples
  - » Management information and the student experience
  - » Enhancing the effectiveness of procurement to deliver cost savings
  - » Asset sharing

# MI case study (1)

## Student engagement (staff view)



Source: Nottingham  
Trent University

# MI case study (2)

## Student engagement (student view)



Source: Nottingham Trent University

# Benchmarking case study (1)

## Procurement (effectiveness)

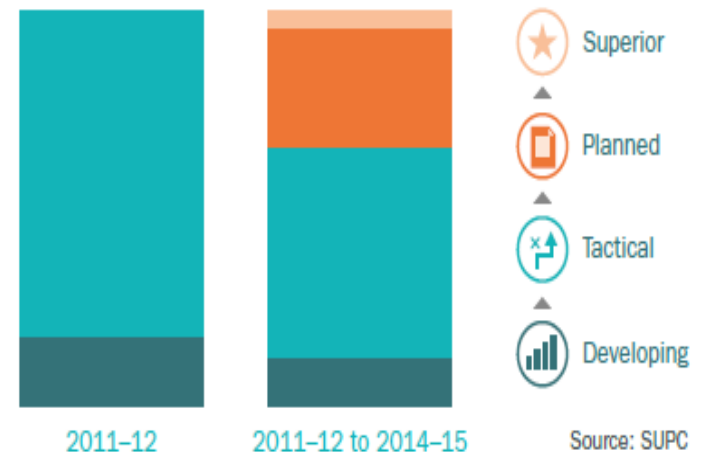
### Procurement Maturity Assessments in UK universities

- Self-assessment tool assess performance in nine key areas
- Helps institutional leaders understand the effectiveness of governance and management of spend (c. £12bn a year)
- Benchmark performance against other institutions – significant improvement over time
- Better outcomes mean more control over spend – tangible benefits

#### *Working smarter*

Procurement Maturity Assessments show **increasingly sophisticated** procurement within universities since 2011–12.

#### *Non-pay spend by maturity stage*



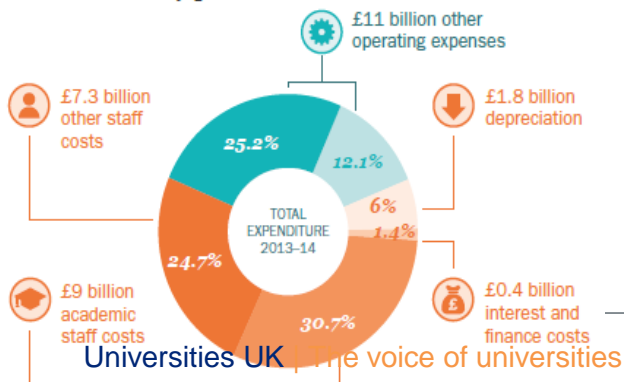
# Benchmarking case study (2)

## Procurement (savings)

- Annual survey benchmarks savings and performance – Efficiency Measurement Model
- Alongside PMA as a key tool – uses institutional data and sector-developed benchmarks to enable consistent calculation of savings
- Alongside other data can help demonstrate institutional and sector performance – and, with PMAs, has raised the profile of procurement within institutions

### Procurement matters

**25.2% of all UK university** spending is potentially influenceable by procurement.



Source: HESA, HEFCE

### Making savings

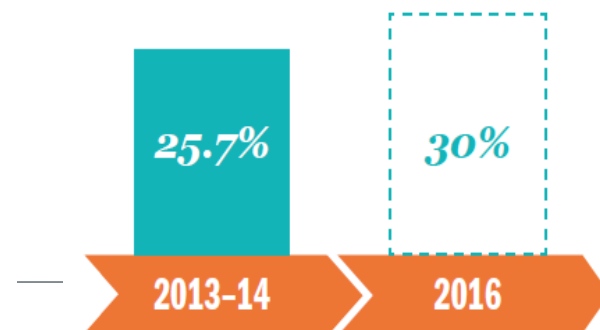
Over **£435 million** was saved by better procurement in universities in England between 2011-12 and 2013-14.



Source: HEFCE

### Meeting targets

**Universities in England** are on track to meet a target of **30% collaborative procurement** by 2016.



Source: HEFCE

**“Well managed, strategic asset sharing arrangements can produce a range of significant benefits beyond efficiencies. The sharing of assets can lead to better science.”**

- UUK (2015) *“Efficiency, effectiveness and value for money”*

- » There are challenges:
  - » Requires new administrative and management processes
  - » Requires cultural change – and the right incentives
  - » Requires time to embed and to realise benefits


**“To drive strategies for increased sharing, and to demonstrate efficient use of assets to stakeholders, a more systematic approach is needed to evidence the impact of equipment sharing”**

– N8 (2015) *“Raising the Return”*


- » Progress to far:
  - » [equipment.data.ac.uk](http://equipment.data.ac.uk)
  - » Kit catalogue
  - » Jisc Research Data Registry and Discovery Service




# Asset-sharing (2)

University Facilities 

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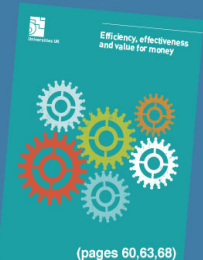
**equipment.data** Compliance Status FAQ Uniquip  
Enabling access to UK HE research equipment  
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**Efficiency, effectiveness and value for money**  
**Professor Sir Ian Diamond**  
Chair, UUK Efficiency Task Group

Acknowledging our work the report makes a powerful recommendation reflecting the cross-sector promotion of equipment sharing through creation of this national register.

The report also highlights how the work of data.ac.uk has advanced and promoted the adoption of open data practices across HE.



(pages 60,63,68)

Start searching now, simply enter the name, or part name, of the equipment or facility you are searching for in the box at the top of the page, select from the drop down list then make contact.



**About this site**  
The development of equipment.data is funded by EPSRC in response to the need to improve visibility and utilisation of UK research equipment. This relatively simple technology enables searching across all published UK research equipment databases through one aggregation 'portal', allowing greater accessibility with the aim to improve efficiency and stimulate greater collaboration in the sector. The technology behind this development has been a partnership between a number of UK universities, primarily outcomes of the UNIQUP Project. The development has the backing of RCUK as its preferred medium for national equipment data sharing offering a scalable solution, without the need for complex software systems.


**Adding your research equipment data**  
Adding your institution's research equipment data is easier than you may think, see the [Frequently Asked Questions](#) page. The project team can provide technical support and guidance regarding the requirements for publishing your equipment dataset. Please use the [contact form](#) in the first instance.


A "status" function is included in the header to this page which provides a list of contributors and allows you to check the quality of your data upload, detailing any issues encountered on the last ingestion. You can also download normalised RDF, CSV and TSV data per organisation, and obtain links to the source dataset.

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Carl Zeiss (Leo / Cambridge) (1)  
Carl Zeiss (Sax) (1)  
FEI (2)  
JEOL (1)



**Technique...**  
Scanning electron microscopy (3)  
Transmission electron microscopy (2)

**Carl Zeiss (Leo / Cambridge) Stereoscan 360**   
The SEM uses electrons to image the surface of materials allowing both high magnification and good depth of field to be achieved.  
[more details >](#)  
Manufacturer: Carl Zeiss (Leo / Cambridge)  
Technique: Scanning electron microscopy

**FEI F20 Tecnai**   
Field emission gun transmission electron microscope  
[more details >](#)  
Manufacturer: FEI  
Technique: Transmission electron microscopy

**FEI Nova 600 NanoLab Dual Beam system**   
The Dual Beam FIB consists of a high resolution field emission electron column and gallium source ion column combined within the same instrument.  
[more details >](#)  
Manufacturer: FEI  
Technique: Scanning electron microscopy

**JEOL 2000FX**   
The TEM uses thin samples to examine internal microstructure at a resolution down to the sub-nanometre level. A combination of imaging, electron diffraction and EDX analysis allows detailed characterisation to be carried out.  
[more details >](#)  
Manufacturer: JEOL  
Technique: Transmission electron microscopy

**Scanning Electron Microscope**   
High resolution field emission gun scanning electron microscope (FEI/SEM)  
[more details >](#)  
Manufacturer: Carl Zeiss (Sax)  
Technique: Scanning electron microscopy

[Download the catalogue online!](#)

This equipment database is powered by the KIT-Catalogue system (v1.0.0).  
KIT-Catalogue has been developed by Loughborough University and is licensed under the [Open Source GPLv3 license](#).



- » Data allows us to ask the right questions and target activities
- » Needs to be used and interpreted intelligently if it is to be useful – become an asset
- » Requires the correct frameworks – investment in infrastructure is important
- » Far more than ‘just’ efficiency – huge potential to harness to power of data to, eg improve the student experience (learner analytics)



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Thank you