AUDE
ASSOCIATION OF UNIVERSITY DIRECTORS OF ESTATES

Excellence in Estates and Facilities

Demonstrating HE Efficiency and Effectiveness

AUDE KPIs and Case Studies

September 2016

1 INTRODUCTION

The Members of the Association of University Directors of Estates (AUDE) are at the forefront of the Higher Education efficiency and effectiveness agenda. At a time when our sector is having to respond to many political and financial changes including higher tuition fees, a restrained public funding environment, greater competition and the pending changes set out in the recent white paper (even greater competition, degree awarding powers, Teaching Excellence Framework, Research Councils merged, credit transfer system to name a few), it is encouraging to see that the work AUDE and its members do is having a significant impact. That estate teams continue to be leading the way in ensuring the HE sector has world-class facilities that best serve students and staff and provide space to support the delivery of excellent research.

As a sector one of our key areas of focus is how do we continue to, not only deliver value for money in a climate where income is reducing in real terms and competition is increasing, but also find recurrent savings which will enable us to make necessary investments in infrastructure, academic endeavours, student and staff experience. It's important we have the flexibility to respond to the challenges and opportunities that we face in the coming years. The challenge is significant, but AUDE and its members are tackling this head on, and are able to demonstrate significant progress in this area already. The case studies set out in this document evidence that.

AUDE has a crucial role to play in benchmarking, recommending strategies and sharing best practice to support our members in delivering efficiencies and value for money. As an organisation we often hear of excellent examples of progress and innovation, but it is imperative that these are shared wider afield, and that we recognise the achievements taking place across our sector, learn from what others are doing and always strive for continuous improvement.

With all that in mind, AUDE wanted to produce a report that could act as an evidence base - showcasing how our sector is focusing on efficiency and effectiveness through not only KPI metrics but also through examples from universities across the UK.

2 MEASURING EFFICIENCY AND DEMONSTRATING

Phase II of Sir Ian Diamond's Review [link] into efficiency and effectiveness in higher education was published last year. It set out the economic impact UK universities have in contributing over £73 billion a year to the national economy, its support of over 700,000 jobs across the UK and the HE sector's impact in providing world-class education. It showcased excellence in research and innovation and how the UK continues to have a global reputation for the provision of quality higher education.

AUDE played an important role in providing information for the Phase II Review and also published 'Delivering Value from the Higher Education Estate' which focused on demonstrable efficiency and effectiveness across the sector. AUDE recommends both reports and its annual Higher Education Estates Statistics Report for more in depth reading and statistical indicators of how estate teams are delivering value.

KEY PERFORMANCE INDICATORS:

There is a broad spectrum of institution size and focus within the sector and with that in mind, AUDE has highlighted key performance indicators within four main categories (Efficiency, Quality, Value and Sustainability).

These are:

EFFICIENCY

- Area per student and staff FTE (GIA m2)
- Total property cost per m2 (GIA)

QUALITY

- Percentage of GIA in condition Grade A and B
- Percentage of GIA in functional suitability grades 1 and 2

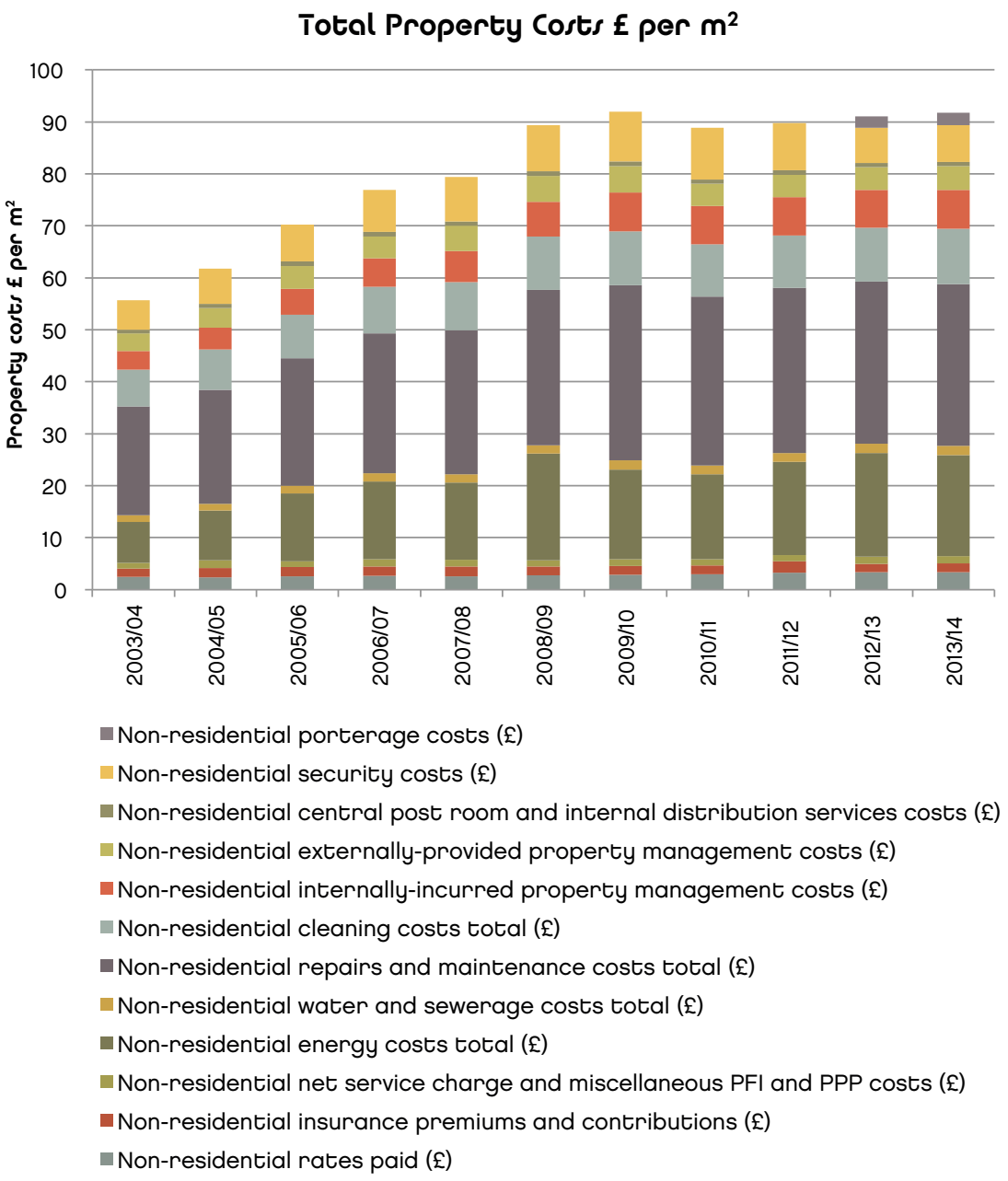
VALUE

- Income per m2 (GIA)
- Insurance replacement value as a proportion of total income

SUSTAINABILITY

- Maintenance and capital expenditure as percentage of insurance replacement value (rolling average of 3 years)
- Carbon emissions scope 1 and 2 tonnes by m2

EFFICIENCY - TOTAL PROPERTY COSTS (TOTAL PROPERTY COSTS PER SQUARE METRE)



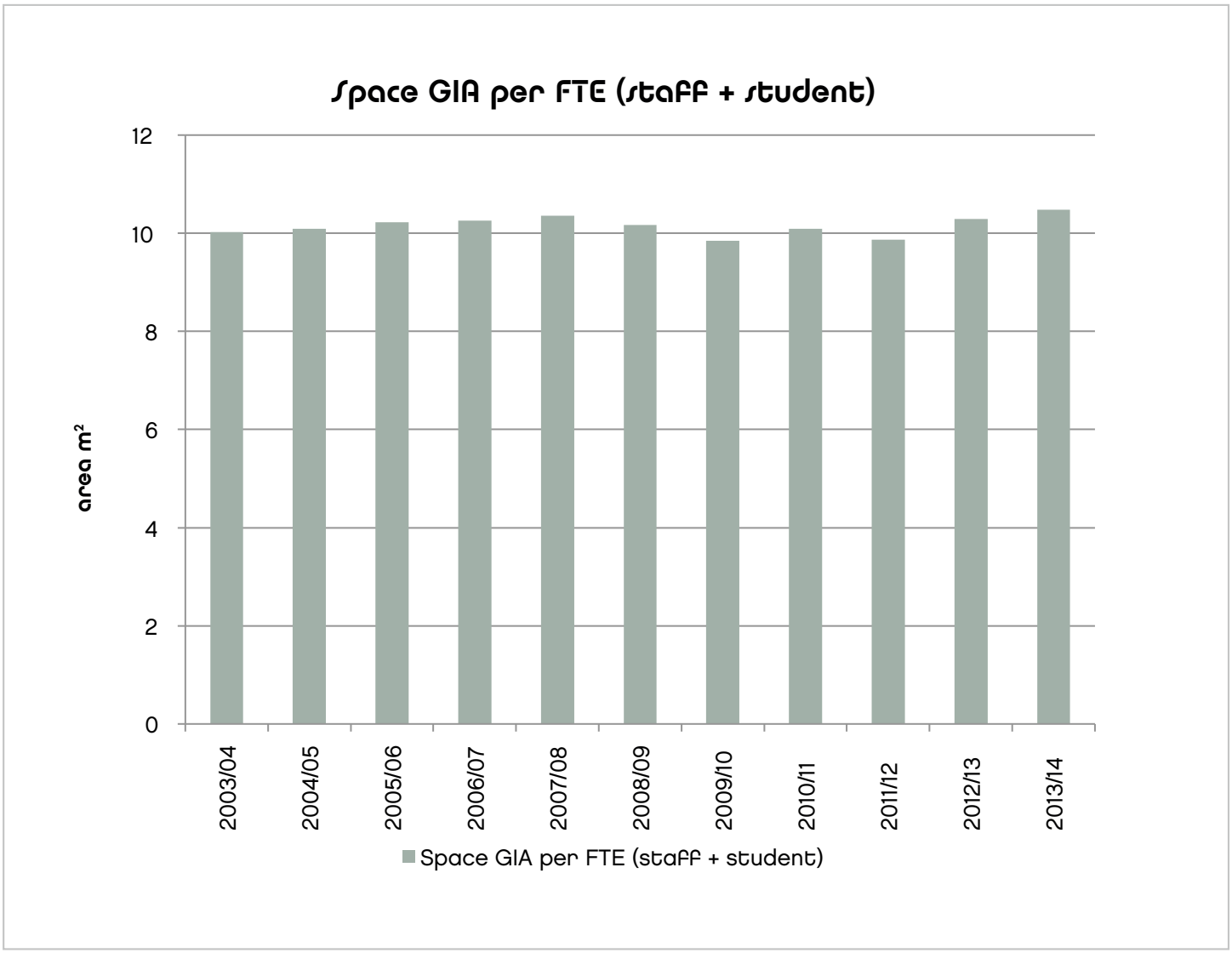
The last decade can be thought of as two distinct phases; the first phase, as a consequence of a growing sector, saw property costs rising to a maximum average cost of over £90 per m2 (GIA) per annum, the next five years have seen property costs held at that figure, despite the growth continuing.

During this time there have been substantial upward pressures on these costs and yet Estates Directors have answered the requirement to maintain these costs.

Importantly, whilst some institutions have particularly expensive estates to operate (over £150 per m2), linked to the age of the estate or specialist nature of the facilities, the majority of institutions are within 20% of the mean figure of £91 per m2 to run their estate.

Repairs and maintenance continues to be the largest single element in the Total Property Costs for institutions, with Energy costs in second place.

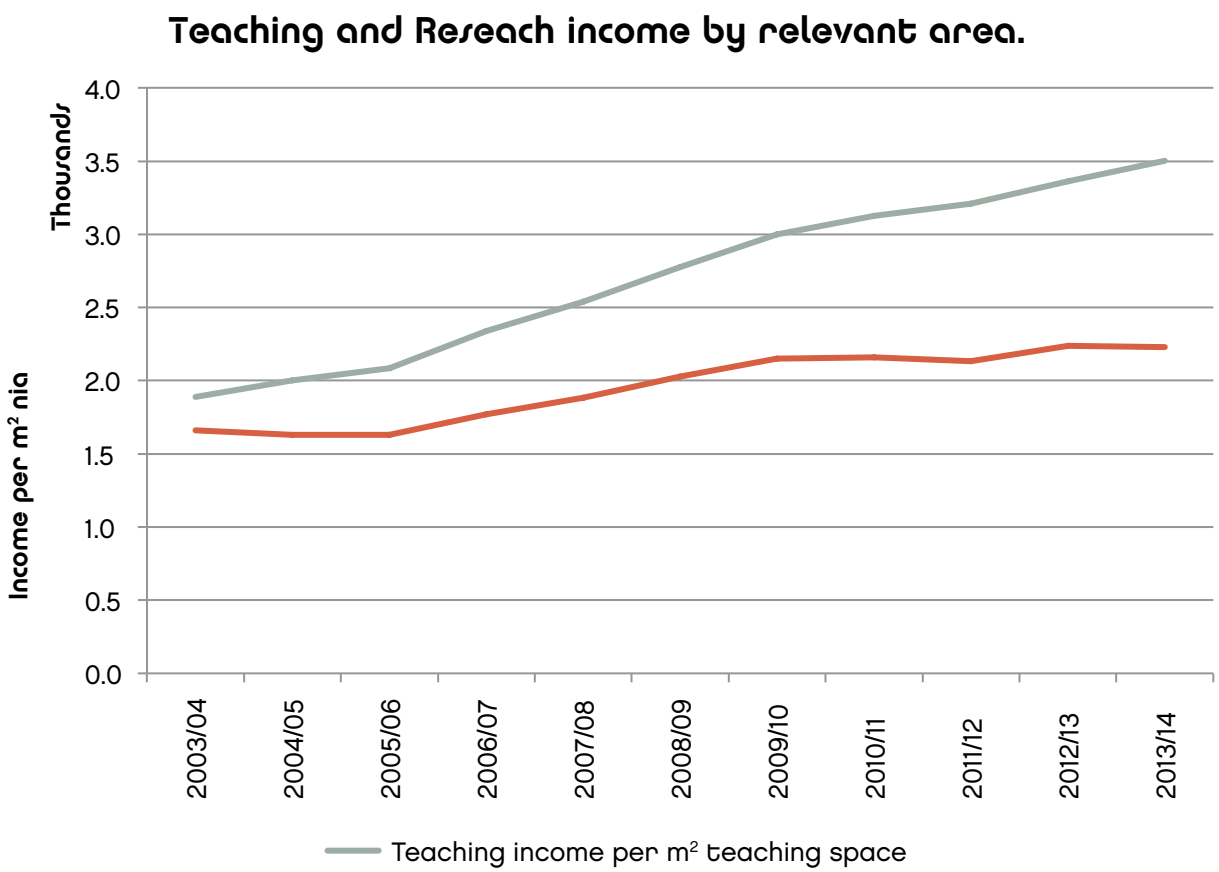
AREA PER STUDENT AND STAFF FTE (GIA PER M)



This metric is designed to be a high level measure of the overall provision of space compared to the number of staff and student FTEs (all under and post graduate students added to the number of staff). As is shown, this number has varied very little in the past ten years, despite a growing sector.

Institutions should ensure an appropriate peer group is used when comparing this metric as there are substantial differences from one institution to another dependent upon the nature of individual institutions. (Research intensive institutions will have a greater GIA per FTE than teaching intensive institutions for example).

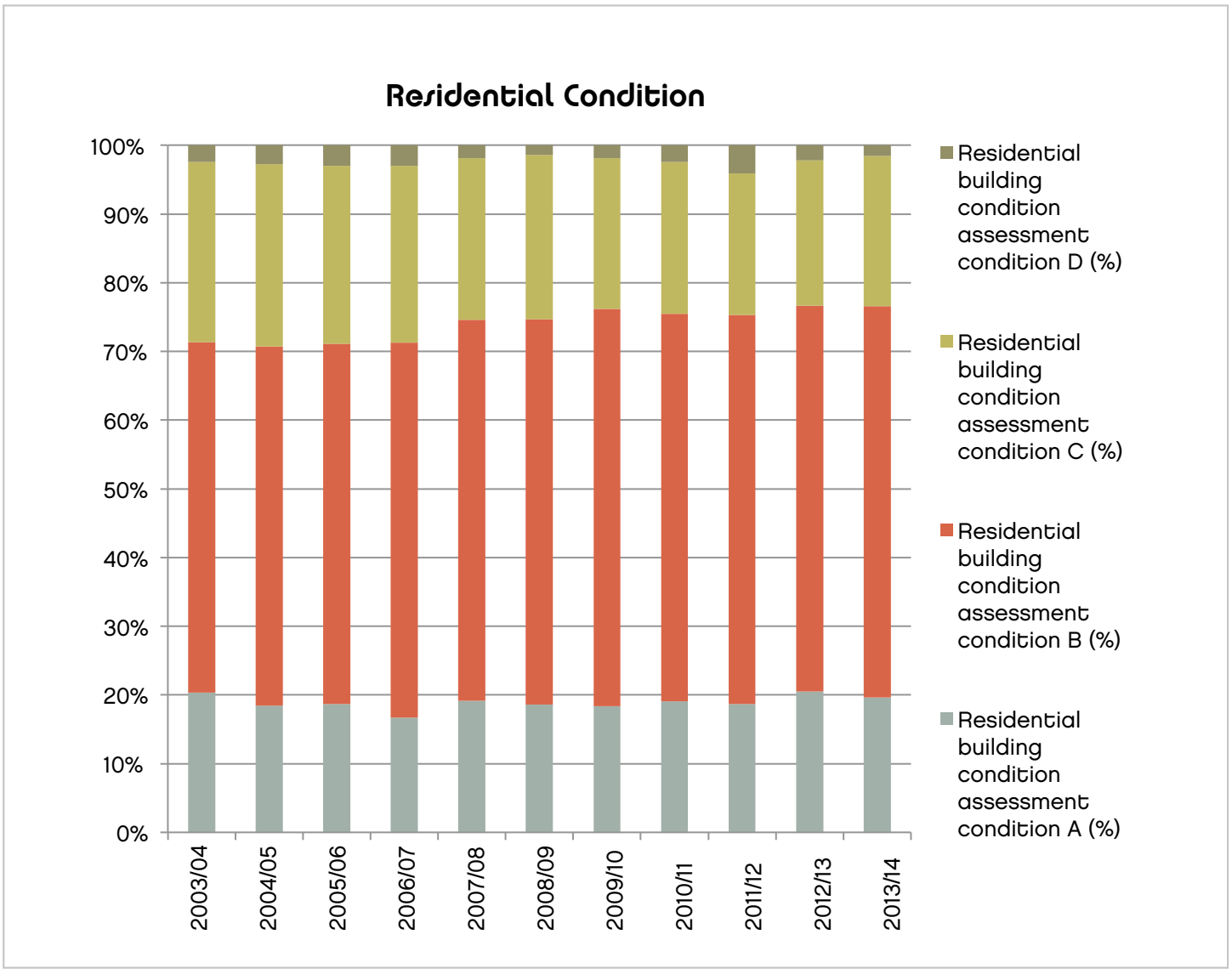
TEACHING AND RESEARCH INCOME



This graph shows teaching income per m2 of teaching space and research income per m2 of research space. What this shows is that use of teaching space has increased significantly over the period, whereas research space utilisation has not increased at the same rate. This metric excludes administrative and support space and as such measures the activity taking place in space allocated to that activity.

The increase in student numbers, and the income generated by that activity, has clearly assisted in driving up teaching income per m2 teaching space. This notwithstanding the fact that institutions have created additional space for learning as part of their capital programmes.

CONDITION OF ESTATE



The condition of the residential estate has increased over the last 10 years; however this increase is only marginal, from 71% of the estate in conditions A and B, to 76%. There are certainly a number of institutions for which the condition of some of their own residences is a cause for concern and an area for investment.

3 GOOD PRACTICE CASE STUDIES/ CURRENT INITIATIVES

The annual AUDE EMR report is often used by universities to benchmark and compare various targets and metrics with other institutions sharing similar characteristics and strategic goals. There are, however, a myriad of projects, every day practices and new initiatives being implemented across the country that is continually responding to the efficiency and effectiveness agenda. Sharing these practices, we can learn from our colleagues and continue to ensure efficiency remains a priority across universities.

Please find below a variety of initiatives from different HEIs showcasing efficiency gains.

Case Study 1
Demonstrating Efficiency
Aston University – New Academic Workspace

THE CHALLENGE

Aston University has an ambitious growth plan and, as three of the five schools will be accommodated within the existing estate, fresh thinking was required to overcome the challenges posed by Aston's Main Building.

The Main Building, designed in the 1920s, has historically comprised many large singular academic offices 20m² to 25m² each with a long and thin configuration. This historical design was imposed primarily by physical building restrictions; particularly the positioning of columns, deep floorplate and central corridor. This set up was extremely inefficient, did not support the University's growth or environmental strategy and entrenched views of space entitlement.

The Biology and Pharmacy groups involved were located disparately on separate floors which produced little cohesive group feeling or identity and there was no facility to encourage interaction to promote research generation. A prime objective was to co-locate research teams and to provide an appropriate workspace that included academics, researchers and postgraduate research students together. The design of the space should encourage interaction, provide the quality expected to showcase to industrial partners and also provide privacy where required whilst allowing access to staff for undergraduate students.

THE PROCESS

Under Aston's capital plan much of the Main Building will be refurbished and to pave the way an 'office concept feasibility study' was conducted to investigate how to make better use of space within the constraints of the building, including smaller offices. Academics, support staff and postgraduate research students were consciously included in the study to gain a rounded input from those who would ultimately use these spaces. Several layout options were detailed at the conclusion of the study which aligned to varying staff/researcher ratios which would be used as the blueprint for all future developments. This proved a hugely valuable exercise and set the scene for this first refurbishment whilst also generating champions from the School who then worked closely with the Estates team and the architect through-out the project and helped to bring colleagues on board.

THE SOLUTION

The design comprised back to back offices to take advantage of the deep floorplate with a central spine access corridor and shared researcher areas at each end; this provided undergraduate students easy access to staff whilst maintaining privacy for staff and student researchers who share the researcher offices. The inner staff offices have no direct access to windows, however high glazing and restricted height blinds allows light to traverse which renders them light and bright. Staff offices have reduced to 8m² or 10m² dependent upon building elevation and meeting/tutorial rooms were provided based on surveyed usage to support the use of smaller offices.

The main entrance into the workspace comprises a kitchen and social area which increases the possibility of chance meetings and interaction. The whole area has a clean, bright, professional feel with a high quality fit-out including high specification glazing to address concerns regarding noise transfer.

THE RESULT

Via a project working group staff were actively involved in shaping the initial blueprint design to include team specific requirements, staff had a great deal of input into the project and feel that they own the design. The whole process went very smoothly and the response from the users has been overwhelmingly positive.

Despite the design necessity for an access corridor the space is now much more efficient;

a) staff offices have reduced from an average of 19.24m² in this part of the building spanning both elevations to an average of 8.7m².

b) space per person has reduced from 21m²/person to 6.5m²/person overall.

Other departments that have yet to undergo redevelopment are now keen to be next in line having witnessed the benefits of the design and fresh, modern aesthetic; a successful project which we hope to build upon in future developments.

Case Study 2
Demonstrating Efficiency
Sheffield Hallam University, Facilities Directorate - New Ways of Working Project

THE CHALLENGE

In 2013 SHU purchased a new 5 storey office building within Sheffield City Centre with the objective of moving the Facilities Directorate and Directorate of international Development in the building once it had been refurbished. At briefing stage it was acknowledged that nearly 50% of space within SHU buildings was designated as staff office accommodation, with a mixture of single, shared and open plan offices with each permanent member of staff having their own set desk. This way of working was not only space hungry but was also inflexible and did not always lend itself to the variety of tasks undertaken by staff each day. Further to this, any increases in staff numbers or changes to the organisational structure led to space issues and costs incurred to set up a new user with a desk and associated storage as well as any IT requirements.

The lack of mobile technology also caused issues for staff wishing to work more flexibly, with fixed location PC the standard IT provision. This resulted in staff often being slow to react to any issues encountered when out of the office as they needed to wait until they returned to their desk to undertake any actions. The use of individual offices was seen as the main culprit in terms of underutilised space. With all of this considered it was clear that there was an opportunity to improve efficiency and effectiveness within the directorates.

THE PROCESS

The refurbishment of the newly purchased office building and subsequent office move of around 140 staff gave an ideal opportunity to challenge the status quo in terms of space and technology provision and a 'New Ways of Working' project was commissioned to investigate how FD and DID could be more efficient in their use of space and mobile IT.

THE SOLUTION

The NWW project researched agile working practices from the commercial sector and through significant time invested in staff engagement and consultation a proposal for agile working practices was developed, with key decisions taken to ensure the office workspace was set up as flexibly as possible, including;

- No individual offices or desk ownership - everyone sits in an open plan environment. The NWW project sought to replace the convention of desk ownership with the concept of greater autonomy and flexibility. This way of working also enables space to be reclaimed when a member of staff is out of the office or away from a desk
- Reduced desk to person ratio (8:10), with only 3 desks allocated to specific employees in the whole building. This shift in space allocation redefines the workplace, challenging the convention that all work needs to be undertaken at a desk. Instead, a range of multi-functional work settings would be available, enabling staff to choose a work setting according to activity type, for example; collaborative spaces, quiet work spaces, stand up meeting spaces in open plan, cellular meeting spaces, social breakout spaces, drop in work space
- Replaced desk pedestals with lockers - it was noted that individual personal storage in pedestals was one of the factors tying people to a particular desk
- Clear desk policy - so each workstation is available for another employee once an individual has completed their work in that location
- Increased provision of mobile technology (laptops, tablets, smart phones) to ensure greater access to email and shared documents when out of the office
- Manage staff performance through outputs rather than through inputs - challenging the 'presenteeism' culture which prevailed at the time
- Move document storage online - development of Microsoft SharePoint software for storage of shared documents to enable a reduced amount of paper storage facility within the office environment

The relocation into the new facility in February 2015 provided a golden opportunity to implement the new ways of working practices.

THE RESULT

It is now 1 year since FD and DID relocated to new premises and implemented new ways of working and there are tangible signs of increased flexibility in the workplace and increased productivity and staff wellbeing. The ability to sit with different colleagues on a daily basis as required has led to a decrease in planned meetings due to an increase in ad-hoc conversations. A pre and post occupancy survey was commissioned through Leesman Ltd. and the pre and post comparison show a clear positive trend towards increased productivity, effectiveness of space and wellbeing. Some highlights of the survey include;

- 74.3% of staff who feel the workplace enable them to work productively, an increase of 19.8% compared to pre-implementation of NWW
- 82.1% of staff consider the office provides the right variety of different types of workspace, an increase of 47.3% compared to the pre-move survey
- 92.5% respondents are satisfied with the space available for collaborating on focussed work, an increase of 31.8%
- 70.7% of staff are satisfied with the mobile technology available, with 73.5 satisfied with fixed technology

The FD and DID New Ways of Working project has been well received by staff despite early concerns about not owning a desk and the results of the post occupancy survey are being closely monitored by other SHU departments and faculties with major interest from other professional services within SHU looking to make efficiency savings though better use of space

Case Study 3
Demonstrating Quality
London School of Economics - Cleaning Services

THE CHALLENGE

The LSE had two different contracts which were dealt with by two different Service Divisions of the School. This caused considerable drawbacks in managing these contracts across two different physical areas.

The main Campus contract was well established since 2012 with:

- A fit for purpose specification
- A robust contract management
- Defined KPIs, variation processes, incentives and penalties process
- Good quality assurance processes:
    - Regular auditing by client and contractor
    - Independent auditing
    - Pre -programmed operational meeting -regular follow-ups
    - Customer feedback and potential actions taken (forms part of KPI process)

The Residential portfolio had been on a rolling contract from 2009 which had the following consequences:

- The specification was no longer fit for purpose because of the changing needs of the business.
- There were uncontrolled costs due to specification no longer being fit for purpose.
- The lack of investment and commitment from the incumbent with regards to:
    - Equipment
    - Training
    - Staff development
    - Staff morale
- General complacency

THE PROCESS

After considering various options, it was decided the best solution would be to have one contract which would be able to meet the defined requirements of the Academic and Residential parts of the business whilst maintaining one standard approach in service delivery, financial management and management and compliance. This was achieved by:

- Specification which was fit for purpose on both sides of the business
- One defined approach to contract management
- KPIs which were applicable to both sides of the business

An invitation to tender was prepared and four companies entered into a dialogue with the LSE. After a detailed scoring and assessment, set against criteria and defined requirements published within the tender document, Company A was selected as the preferred partner.

THE SOLUTION

Tendering both the main Campus and Residences contracts at the same time under one specification provided the following benefits:

- Consistent approach in the service delivery
    - Set methodologies
    - Standard training requirements
- Consistent approach in the contract management with defined service level agreements/Key performance indicators
- Better financial control:
    - Known cost for the 3 year contract period. Although the costs were not fixed (living wage annual uplift) opportunity was made available to tenders to include this cost year on year.
    - Performance penalties
    - Variation processes
    - Performance incentives
- Synergies between the staffing pools on both the main Campus and Residences which has led to increased staff commitment and stability.

THE RESULTS

Awarding a single contract to both the Academic and Residential sides of the business to one service provided the following benefits:

- Financial benefits:
    - £690K saving to the school over 3-year period of the contract
    - 0.5% saving on the management fee charged by the contractor which yielded an additional sum over 3 years
    - Synergies between the management team which has yielded an additional sum over 3 years
    - Transparent and open book financial information between LSE and Contractor.
- Centralised contract management
- Standardisation of service delivery across both sides of the business
- Increased staffing resources which can be utilised on both sides of the business.

Case Study 4
Demonstrating Value
University of Hertfordshire – Security services Long Term Partnership

THE CHALLENGE

In 2011 the University contracted its security, car park management and cash in transit services to Securitas on a 3 and two year contract basis. This approach resulted in savings to the University whilst maintaining a good service but there were some drawbacks:

- A lack of commitment from the contractor to invest
- The tender process had to be repeated every three years (or the justification for the extension had to be made). This process can take up to a year
- The cost of the service provision changed every 3 years according to current day prices
- A lack of commitment to Officers employed by the contractor due to the short nature of the contract

THE PROCESS

After considering the options it was agreed that a Long Term Partnership (LTP) should be sought. The benefits of an LTP are:

- A commitment from the contractor to invest as it provides a longer pay back period for investment
- After the initial tendering process, the price is fixed for 10 years and does not rise annually by inflation
- Stability for staff resulting in increased commitment
- Continuity of service delivery supported by the agreed defined service levels

An invitation to tender was prepared and four companies entered in to dialogue with the University. During dialogue it was decided to include Reception Services in the contract.

After a detailed scoring and assessment, set against established criteria and defined requirements, Securitas were selected as the preferred partner.

THE SOLUTION

Securitas has committed up to £1m technological investment into the service most of which will be invested in the first two years of the partnership. Part of this will be the installation of ANPR to assist with car park management, visitor management and eventually permit management.

A fixed price for 10 years has been negotiated with Securitas taking all risk on price including inflation and VAT risk.

Given the high profile and important nature of the service, the University has a termination clause if there is a loss of confidence in service delivery for any reason.

THE RESULTS

In the region of £500k per annum saving – by the end of the 10 years, a £5m saving will have been realised.
For staff, the benefits are the security of a 10 year contract with the same company and the opportunities for development in a large multi-national company.

Written in to the contract is that Securitas will commit to organising up to 70 work place opportunities for students through graduate placements, post-graduate experience and part time employment.

Benefits already realised within a few months of the new contract are a new radio system, new uniforms and the ANPR project is underway.

Case Study 5
Demonstrating Sustainability
The University of Nottingham - Delivering Efficiency and Carbon Reduction with Combined Heat and Power

THE CHALLENGE

The University of Nottingham has earned a reputation for its commitment to sustainability. It has won a number of Green Gown Awards and has been ranked top of the UI Green Metric for the past three years. As part of its carbon management plan, the University has invested in a number of large scale carbon reduction projects, including the creation of a new combined heat and power (CHP) plant which produces heat and electricity for use at its Sutton Bonington campus.

THE PROCESS

The £1.35m project can deliver around 40% of the site's electrical and heating demand and was commissioned December 2015. CHP is the simultaneous production of heat and electricity from a single fuel source, in this case natural gas. It's effectively a small power station but unlike the national grid where the heat is not recovered, the university uses the heat for our buildings through an existing heat network. This enables large overall cost savings compared to the separate purchase of gas and electricity.

THE SOLUTION

The scheme consists of two reciprocating engines designed to operate on natural gas which drive generators and can produce around 800kW of electricity while the engines produce around 970kW of heat to be used directly in our district heating system. Because of season demand for heat and power (with term times and weather patterns) having 2 engines allows the team to modulate the output and so follow the campus load profiles more closely, maximising fuel and carbon savings.

THE RESULTS

The CHP units are estimated to reduce annual energy bills by £260,000 and carbon emissions by 1,150 tonnes of carbon dioxide. During the first month of operation the units saved around £30,000 in energy costs and 140t CO^2. To improve site resilience of the heating network the team replaced sections of the pipework adjacent to the South Laboratory and the Willows where some of the research activities take place. Some of this pipework was showing severe signs of corrosion and as it served critical areas its replacement was considered necessary. The main circulation pumps have also been replaced to improve efficiency and reliability of the system together with inverter speed control to further optimise operating efficiency. The work also includes a new electrical substation so the power can be converted to high voltage (11KV) to enable campus wide connection and distribution of electricity.

Case Study 6
Demonstrating Sustainability
University of Reading – The Carbon Management Plan

THE CHALLENGE

Increasing utilities costs and consumption were accounting for an increasing proportion of the University's expenditure each year; 6% of all non-staff costs at the University.

Reducing carbon emissions from operations also has become increasingly important. The clear links to global climate change fuelled the desire to reduce the University's environmental impacts, while the sector-wide aim to reduce emissions by 43% by 2020 and the practical consideration of the new CRC scheme were further important drivers.

Reducing utilities costs and carbon emissions, while at the same time managing some major estate changes, presented a both a challenge and an opportunity for the University.

THE SOLUTION

In 2011, the University set out ambitious plans to reduce its carbon emissions by 35% by July 2016. Through a comprehensive programme of delivery, it identified that a £3.5 million investment (later increased to £4 million) could result in cumulative savings of £18.5 million (later increased to £19.6 million).

This required senior level commitment both to investment required and the overarching commitment to delivering this reduction target. Regularly monitoring progress, reporting back and managing the annual reduction programmes have been essential elements in delivering against this target.

At a time of major estate changes, it was essential to ensure that major capital investments also contributed to this ambitious carbon reduction target. The University has seen a net increase in its student halls' bedroom space over the last few years, through new on-campus developments replacing the disposal of 2 large off campus sites. The London Road campus also faced major refurbishment, facilitating the subsequent disposal of our Bulmershe campus.

THE RESULTS

By July 2015, energy efficiency investments of £3.1 million had delivered a 26% cut in our carbon emissions compared to our 2008/09 baseline, saving 44,220 tCO2 and £9.9 million on a cumulative basis for the University. A further £2 million has been achieved for and by partner organisations on the estate (included in the original baseline emissions/costs).

At the time of writing (Feb 2016), the University expects to deliver at least a 30% reduction in its carbon emissions by July 2016; with expected cumulative financial savings of £13.5 million to the University and a further £3.7 million for our partner organisations. This has come from energy efficiency investments expected to total £4.1 million, alongside savings from major estate developments.

Estate changes account for approximately a 5% reduction in total emissions, whilst non-estate changes to July 2015 breakdown (in tCO2 terms) as follows:

- Insulation programme – plantroom pipe lagging, roof insulation and draught proofing saving 1,100 tCO2 annually
- IT server upgrades – saving 1,200 tCO^2 annually
- Lighting upgrades – efficient lighting with intelligent sensors – saving 775 tCO^2 annually
- BMS/controls expansion and upgrades – saving 550 tCO^2 annually
- Fume cupboard ventilation upgrades - saving 620 tCO^2 annually
- Heating plant/control upgrades - saving 650 tCO^2 annually
- Ventilation and air conditioning upgrades – saving 400 tCO^2 annually

These technical improvements have been complemented by ongoing awareness and behaviour change initiatives. In addition, a new £13 million replacement LTHW district heating network is now complete, which is anticipated to deliver a further annual saving of approximately £400,000 and 1,250 tCO^2.

4 LOOKING FORWARD

The purpose of this report is to show demonstrable efficiency in the HE sector – not only through statistical data provided in the EMS report but through 'real-life' stories and initiatives and activities happening in universities across the UK. There is continued investment in infrastructure, diversifying income and efficiencies in space use and Estate teams are committed to improving the performance of their estates and finding value for money in all aspects of their work.

AUDE will continue to offer support and tools to help members continue their progress and this year has seen the creating of a Green Scorecard (INSERT HYPERLINK), a comprehensive tool to help UK higher education institutions measure their environmental efforts, set targets and benchmark against each other, and the annual EMS report will be available later this year.

Examples of best practice from our members will continue to be shared through our media work, on our website and through reports and presentations.

5 FURTHER READING

- Alwani-Starr, G. et al. 2015 - Delivering value from the Higher Education Estate – Diamond Review Phase II: Efficiency and Effectiveness in Higher Education
- CBRE Associate: Griffiths, G. 2015 – Higher Education Estates Statistics Report
- Diamond, I. Efficiency, Effectiveness and Value for Money (Universities UK)

For more information visit www.aude.ac.uk/efficiency or contact info@aude.ac.uk, 01509 22 88 36.