SUSTAINABILITY AND COMPETITIVE ADVANTAGE

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HEEPI

- Higher Education Environmental Performance Improvement (www.heepi.org.uk)
  - Green Gown Awards
  - 70+ events with 6000+ attendees
  - Benchmarking
  - Case studies and guidance
  - High Performance Building guides
  - Tools (www.goodcampus.org)
- GreenIT (www.susteit.org.uk)
- Sustainable laboratories
- BREEAM for Higher Education

THE WORLD WE'RE IN

- Growing competition
  - Between institutions; between sectors
- Increasing utility costs
- Environmental crisis
- Stretching government targets
  - 80% carbon reduction 1990-2050
- Tightening regulation
  - 'Command and control' e.g. Building Regs
  - Incentive based' e.g. Waste Levy

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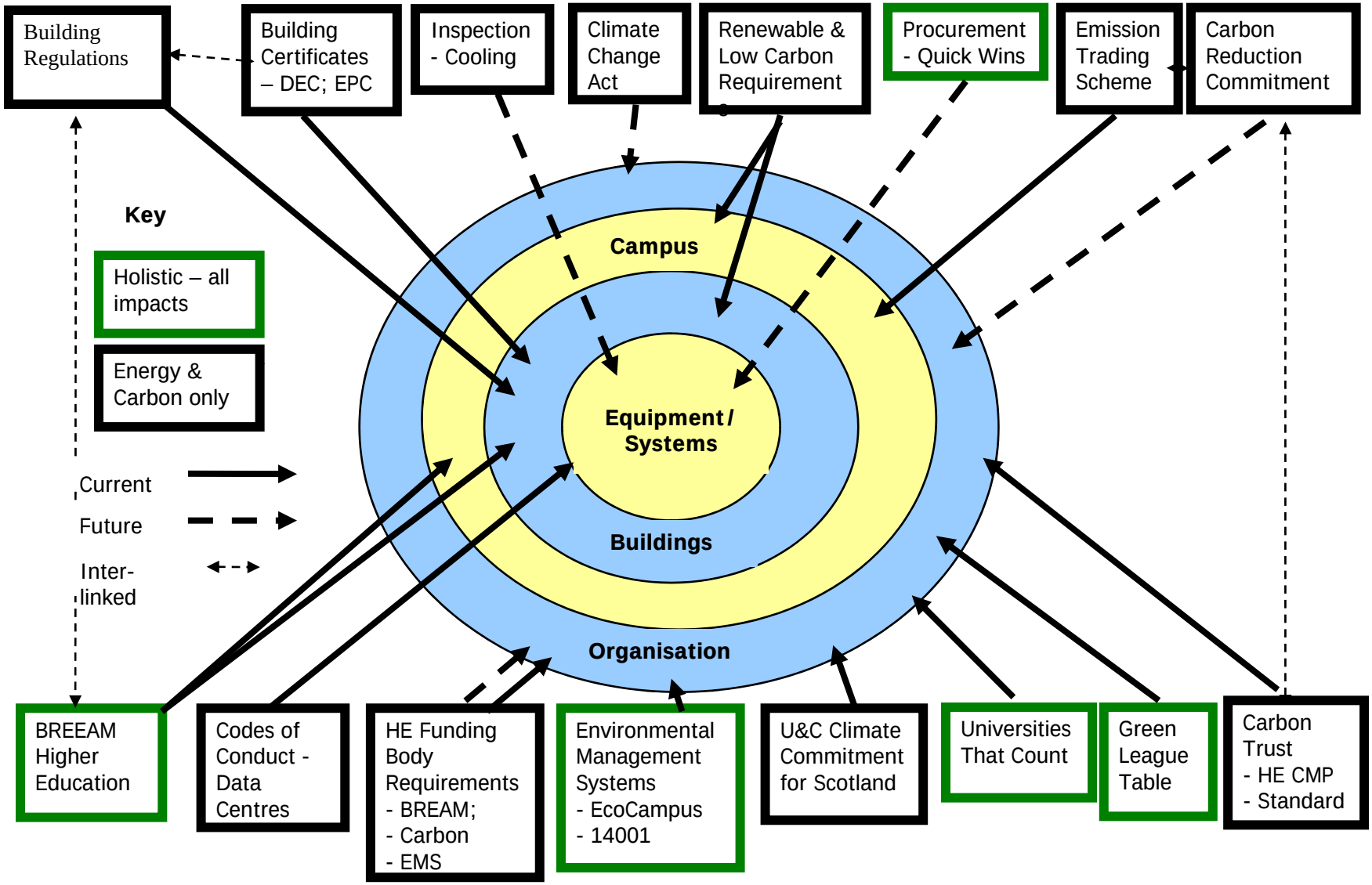
A MORE COMPETITIVE WORLD

- Students
  - Numbers; Fees
- Staff
- Resources
  - Funding bodies
  - Private funders
- Reputation
  - League tables


Building Regulations
Building Certificates – DEC; EPC
Inspection - Cooling
Climate Change Act
Renewable & Low Carbon Requirement
Procurement - Quick Wins
Emission Trading Scheme
Carbon Reduction Commitment
Key
Holistic – all impacts
Energy & Carbon only
Current
Future
Inter-linked
Campus
Equipment / Systems
Buildings
Organisation
BREEAM Higher Education
Codes of Conduct - Data Centres
HE Funding Body Requirements - BREAM; - Carbon - EMS
Environmental Management Systems - EcoCampus - 14001
U&C Climate Commitment for Scotland
Universities That Count
Green League Table
Carbon Trust - HE CMP - Standard

COMPETITIVE ADVANTAGE?

- Tangible
  - Savings
  - Minimising cost increases
  - Increased/protected revenues
- Intangible
  - Reduced risk
  - Enhanced reputation

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SAVINGS

- “minimal increases in upfront costs of about 2% to support green design would, on average, result in life cycle savings of 20% of total construction costs - more than ten times the initial investment”
  - *The Costs and Financial Benefits of Green Buildings, A Report to California’s Sustainable Building Task Force*

BUILDINGS CAN BE MORE ENERGY EFFICIENT

	Medical / Bio Lab (7000m²)	**Chemical Lab (7000m²)**	**Residence**
Best	£246,000	£227,000	£37,000
Typical	£490,000	£438,000	£63,000

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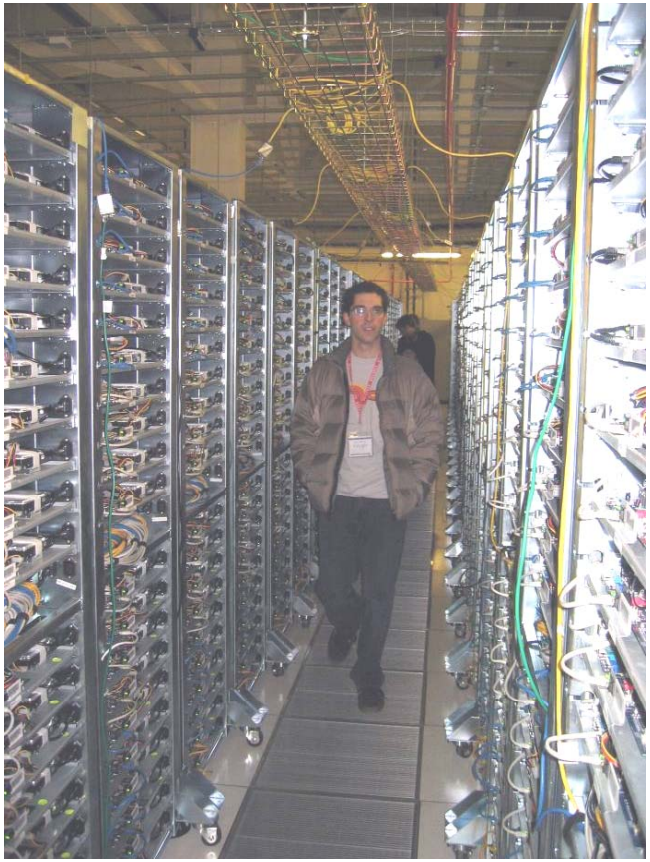
ICT – LOW HANGING FRUIT

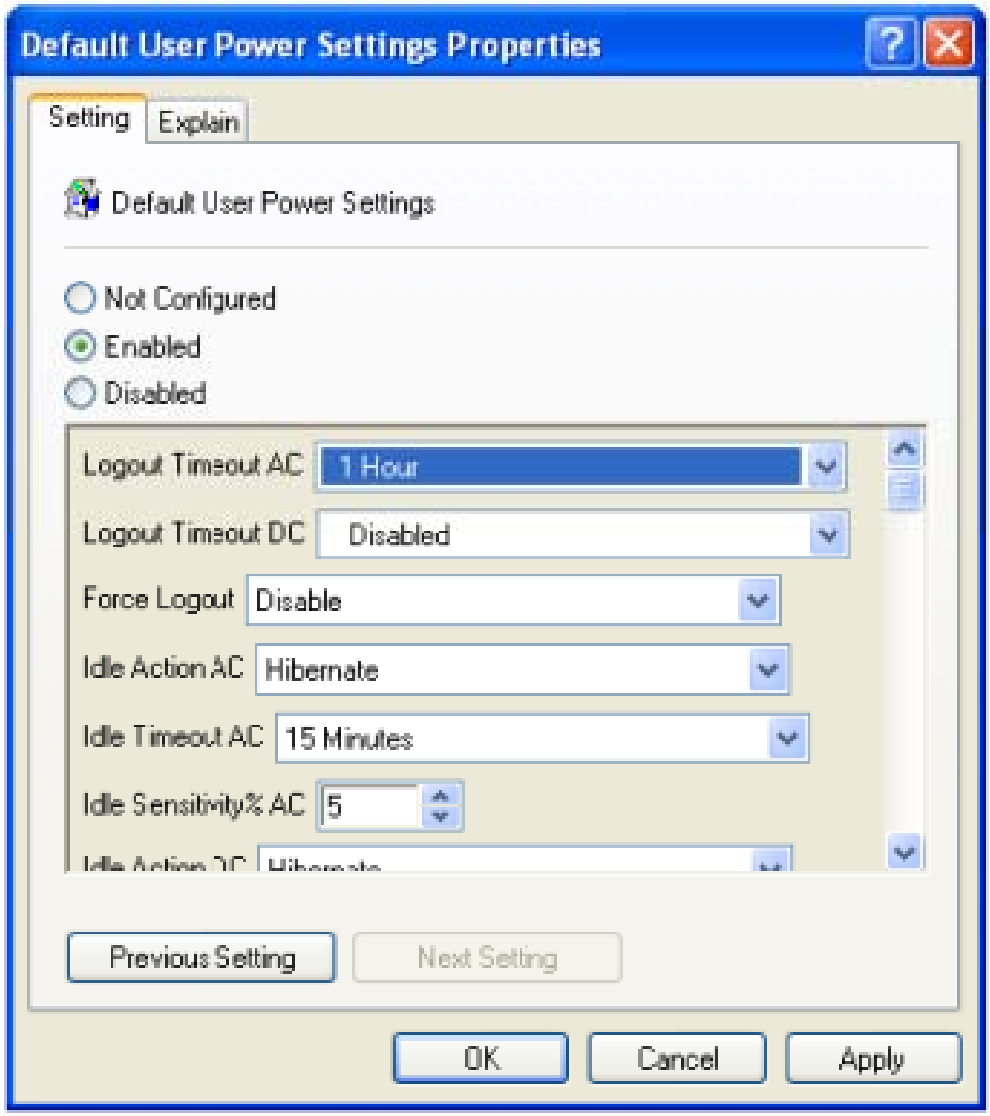
- Many devices
  - 760,000 PCs
  - 215,000 servers
  - 147,000 networked printers
  - 512,000 Mwh of electricity
  - 275,000 tonnes of CO_2
- High costs
  - £60m + for UK HE
  - £1m + at Sheffield University



JISC

COMPUTER POWERDOWN

- Liverpool University
  - 3,500 computers participating
  - 33,350 hours average daily downtime
  - £64,000 and 500 t CO_2 saved per year
  - free to the sector



MINIMISING COST INCREASES – CARBON TRUST VIEW

Environmental Criterion

Thermal mass

Daylighting

Building orientation

Facade performance

Area type grouping

Solar HWS

Ground source heat pump

Controls

CHP/Biomass

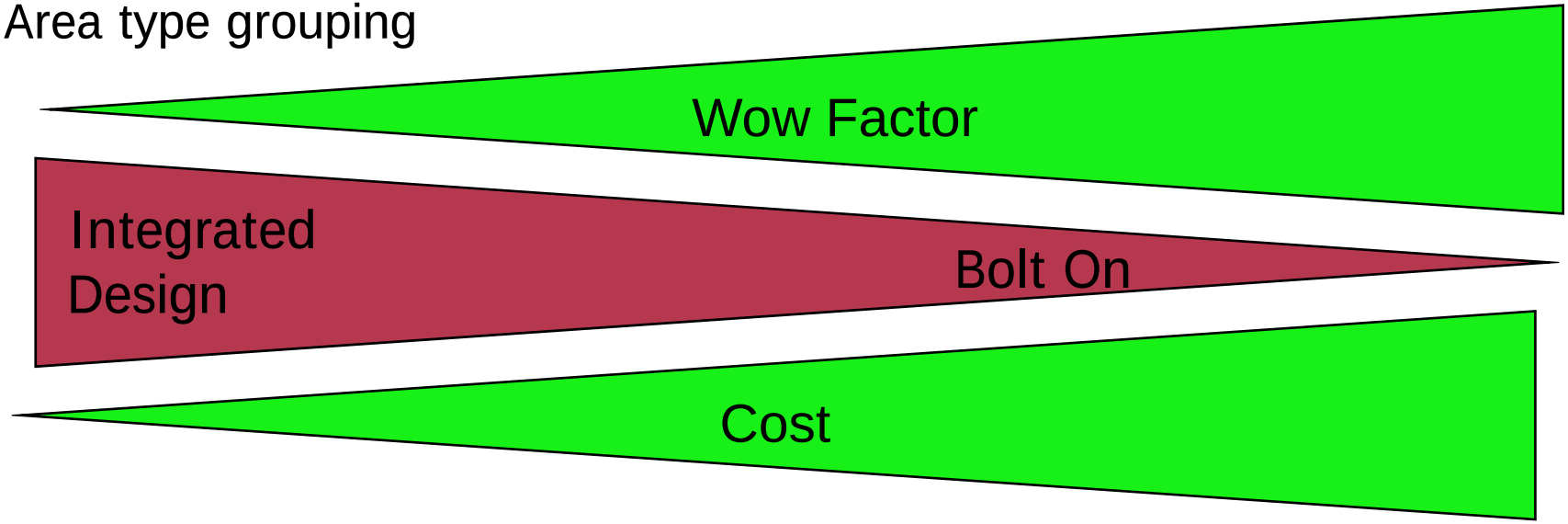
Rainwater harvesting

CHP/Fuel cell

Biomass

Wind

Photovoltaics



INCREASED/PROTECTED REVENUES

- Partnership for Renewables
- Carbon Reduction Commitment
- Residence charges?

REDUCED RISK

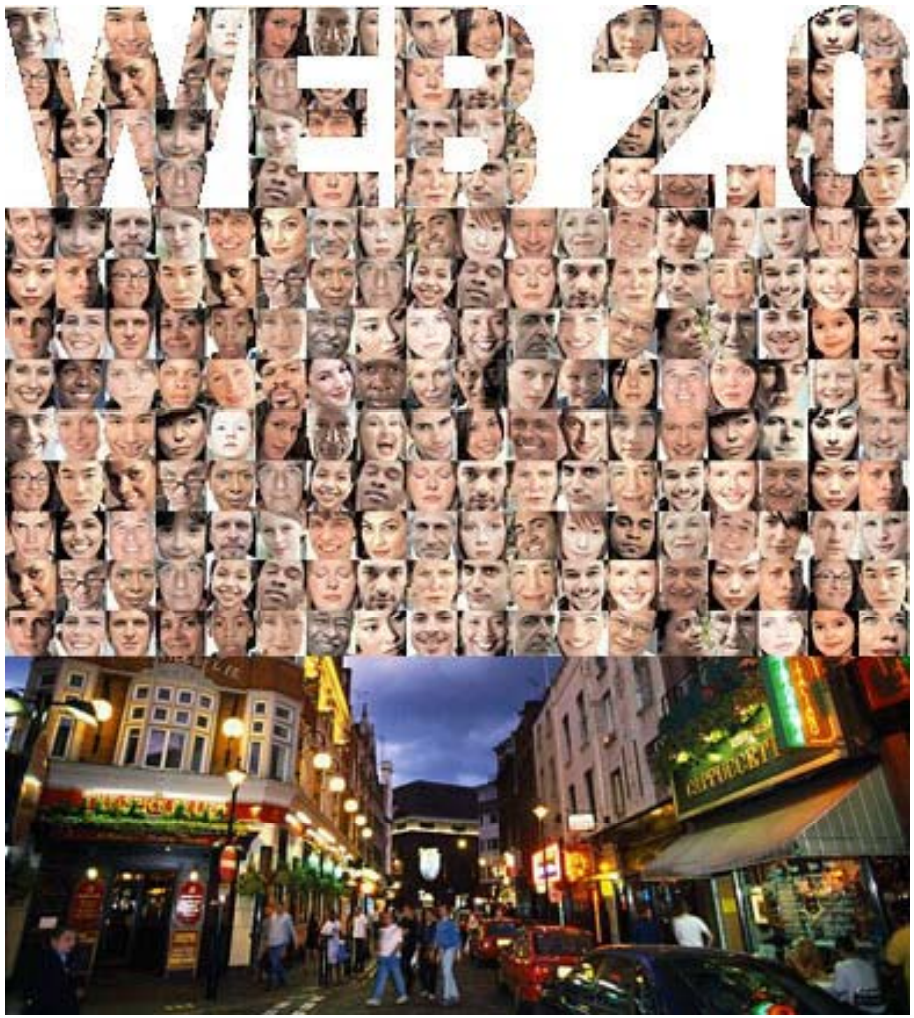
REPUTATION

- Commission for Architecture and the Built Environment (CABE):
- 60% of students and staff said that the quality of the building design positively influenced their choice of university
- 70% + of staff and students believed that the functions and facilities of the buildings they work in improve the way they feel and behave

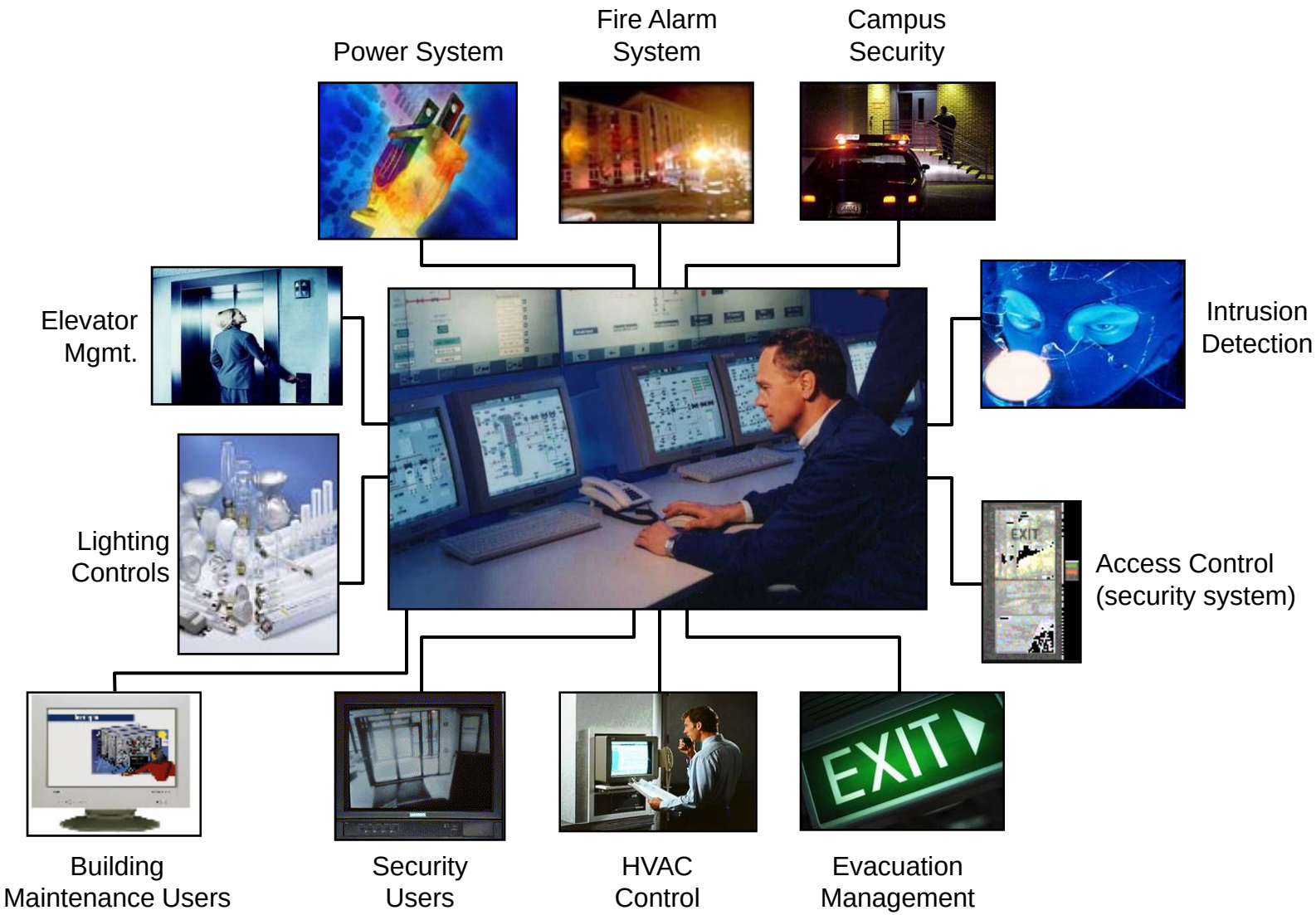
OUR NEW PROFESSOR

VIRTUALLY GREEN?

- Web X.0
  - Viral marketing
  - Viral trashing?
- Savings
  - Smart 2020
  - 15% cut in global CO_2
  - $946 billion of cost reduction

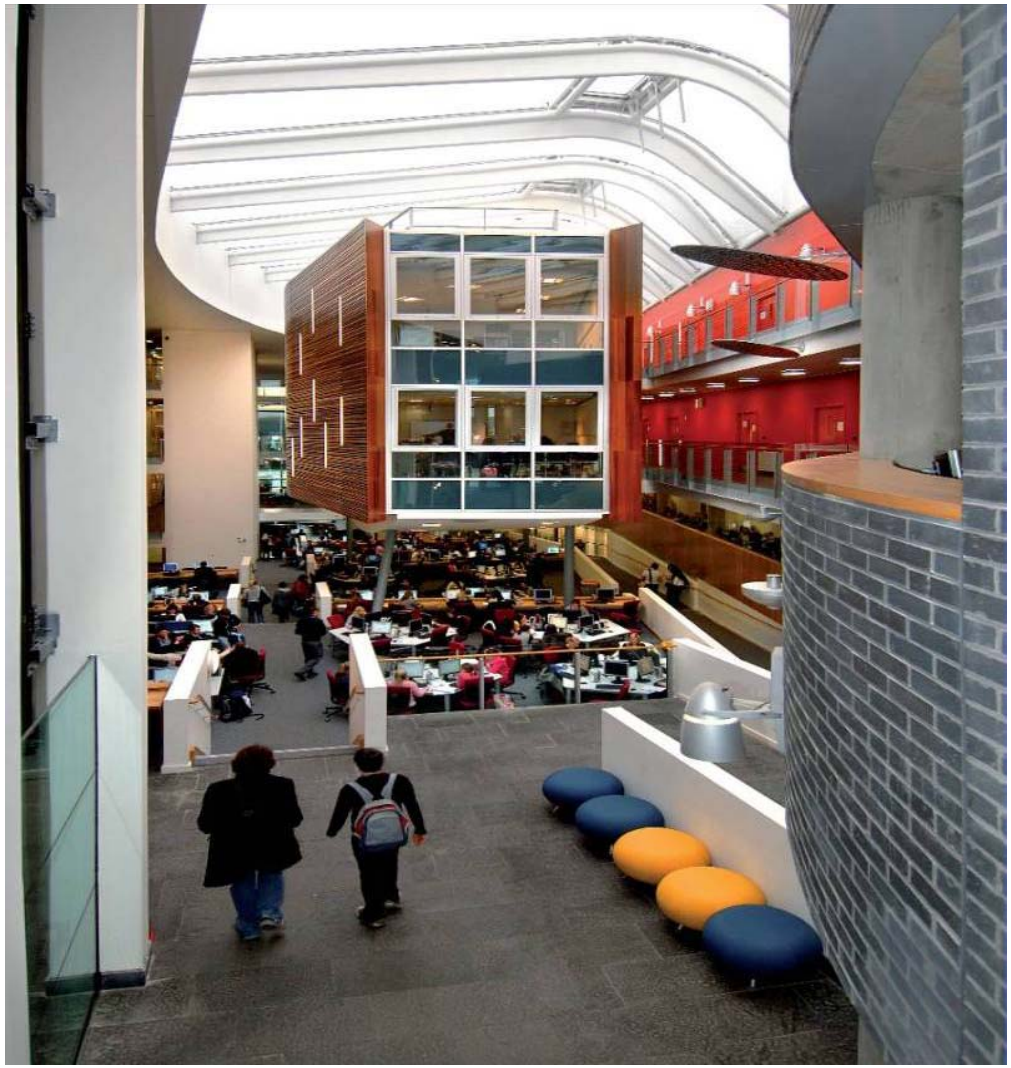


AVE MARIA UNIVERSITY



SUSTAINABLE SYNERGIES

- Queen Margaret University
  - wanted UK's greenest HE building
- PCs main barrier
- 98% thin client
- 25-30% space savings



SUSTAINABLE SYNERGIES

- Attractive, healthy working conditions enhance performance
  - daylighting
  - natural materials
  - natural ventilation
- Lifetime costs
  - capital £1
  - operating £20
  - salaries £100-200

WHAT'S THE KEY QUESTION?

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WHAT'S THE KEY QUESTION?

- Does sustainability cost more?
  - Sometimes, but not always
- What is the cost of not being sustainable?
  - Increasingly high
- What are the competitive benefits of being sustainable?
  - Increasingly high