UCISA Conference 2011

World Café
Sustainable IT

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24th March 2011

Why Sustainable IT?

Sustainability = Capacity to Endure

Ecology – How Biological Systems remain Diverse and Productive over time

Humans – Sustainability = Long-Term maintenance of Well-Being, which has Environmental, Economic and Social Dimensions

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The Challenge

Rock		Hard Place
Pressure on funding	VS	Increasing demand
Significant savings		Changing skill needs
IT already well run		Increasing availability & continuity requirements
More than “good housekeeping”		Recruitment challenge
Support for innovation		Move to “Lightweight” virtualised / Cloud etc
Move away from “Heavyweight” DC		

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A Potential Model

Three Pillars of Sustainability

Economic

Environmental

Social

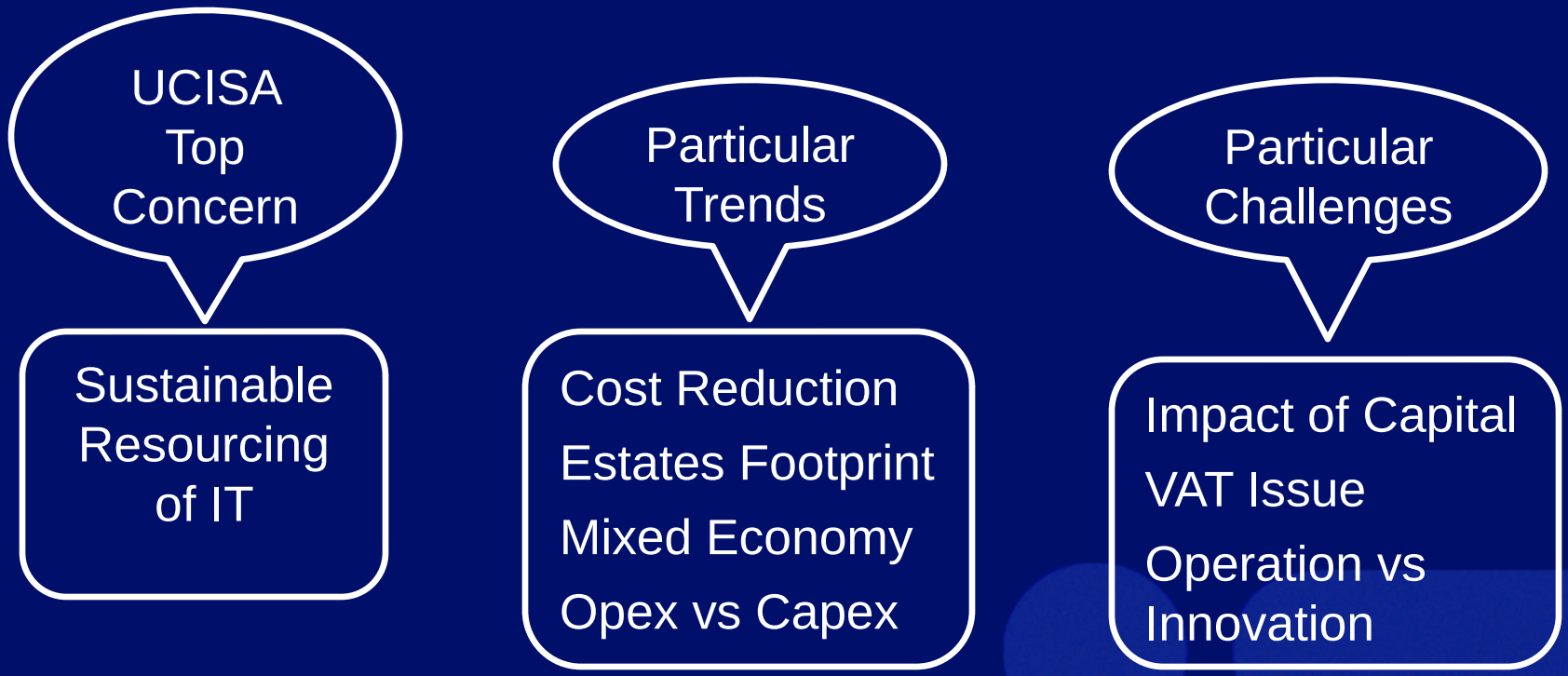
Three Pillars of Sustainable IT

Financial

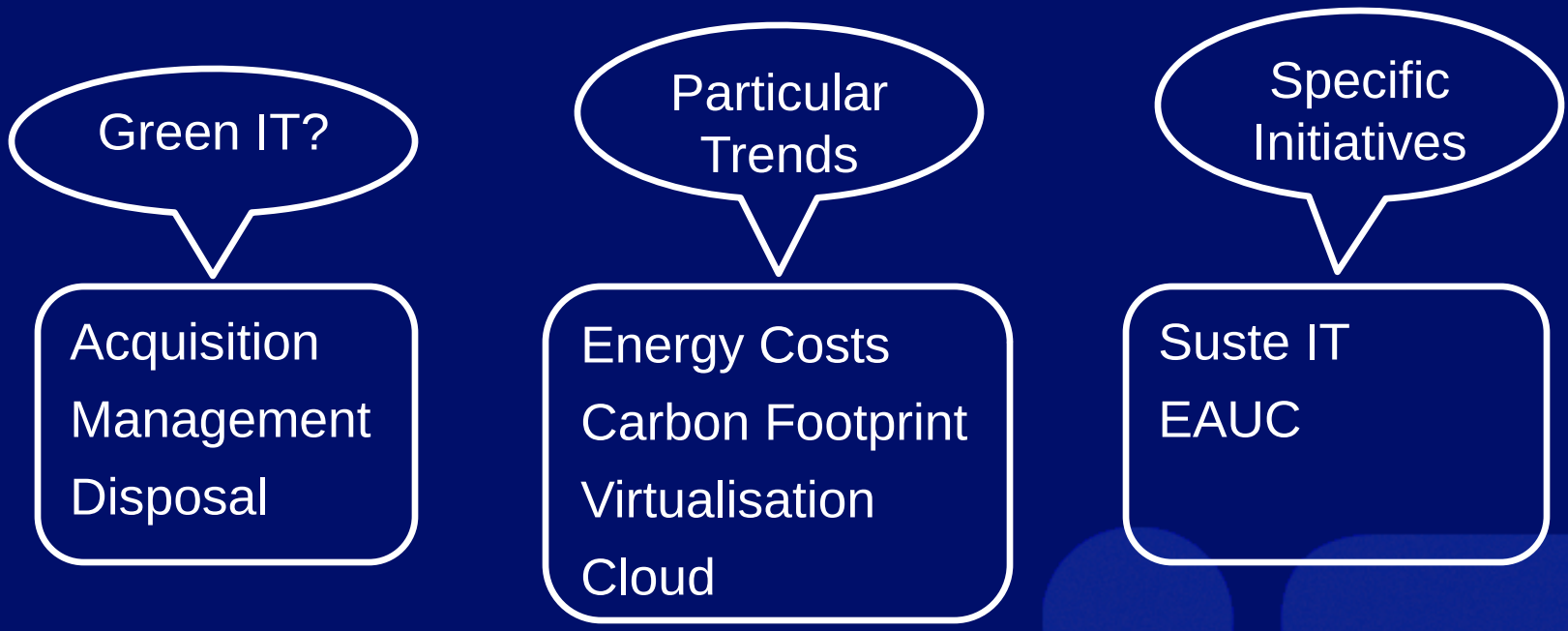
Environmental

Human

Financial Sustainability



Environmental Sustainability



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Human Sustainability

Gartner

- 54% of CIOs
- Wrong mix of resources
- No plan

Particular Trends

- Shift in technology
- Changing skills mix
- Multi - vendor

Particular Challenges

- HR Processes
- Staff Development funds
- Partnering skills

Financial Sustainability Questions

1. How will the IT function need to change to become financially sustainable?
2. What are the main barriers to financial sustainability?
3. How will we know when we have financially sustainable IT and how will it improve the student experience?

Financial Sustainability

The IT service needs to become more commercially aware and develop plans based on sound business cases with strong Return on Investment and Return on Capital Employed

Once the business case has been developed, it is important that the organisation is accountable for the realisation of the benefits

The IT service should engage more widely with all stakeholders and in this way manage their perceptions and expectations. It is also important that other departments share their financial data in a spirit of collaboration to aggregate needs

The IT staff will need to develop greater financial and commercial understanding to develop plans based on sound business cases, and have the courage to propose radical change

Once the organisation is engaged , with appropriate Executive sponsorship for a sustainable approach, it is possible to develop a forward looking investment plan that is agreed and aligned to the strategic priorities

The norm becomes review, rationalise and embed systems and services to optimise efficiency and effectiveness of service delivery, i.e. sweat the IT assets

It is crucial to understand what is core and what are the organisational drivers and priorities, so we can determine when to commission and when to de-commission services

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Financial Sustainability (cont)

It is important to also define what the true cost and value of IT services is across the organisation, including staff time and “shadow IT”, and consider the true revenue implications of capital investments

Is there an implicit assumption that sustainability either results in savings or comes at a premium, and if there is a premium, should customers have to pay?

It would be helpful if a proportion of the savings achieved through the better use of IT could be invested in greater innovation

Income generation from IT services is often mentioned, and it is important to be clear what can be achieved and how it can be achieved

The overall funding regime is a challenge with regard to sustainability, as it is a one year horizon, and it is important to be able to think and plan further ahead

Funding mechanisms within the organisation, such as top slicing, could be replaced by more sophisticated models

It is likely that a single model of sustainability may not be right for every organisation, and it may depend on the financial stability of the organisation

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Financial Sustainability (cont)

Benchmarking could be valuable in establishing a sustainable IT service

The IT service should become more agile and rely less on capital funding

In moving towards sustainability, the IT culture, governance and financial decision making at a senior level need to evolve and recognise the contribution of IT

Performance measurement is a key component in determining sustainability, with the right Key Performance Indicators, and regular communication of this information across the organisation. How do we measure student satisfaction?

Do we really understand who pays for the IT service – Is it the student, the faculty or the organisation?

Do Shared Services have a role to play in achieving financial sustainability? The service mix is key across internal services, managed services and shared services

There is a temptation to over inflate our needs to be competitive, at increased cost. Knowing your market and your competition is key. It is helpful to offer choice, including cheaper options, and resist the temptation to over design

How would an IT service know that they are financially un-sustainable?

Environmental Sustainability Questions

1. What is the difference between environmentally sustainable IT (Green IT) and existing good practice in IT management?

2. What are the key technological and other initiatives that support environmentally sustainable IT?

3. How will we know when we have environmentally sustainable IT and how will it improve the student experience?

Environmental Sustainability

There may be no real difference between good practice and environmentally sustainable IT. It may just be that our existing good practice is not there yet. We shouldn't be wasteful anyway and re-use where possible

Environmental sustainability involves considering every environmental impact of every decision, e.g. the use of power, the use of paper, reducing travel. There is a disparity between cost and carbon

The students may value the environmental sustainability of the IT services and may want to celebrate the "greenness" of their institution. This can create a sense of community

It may be useful to invest more in energy management systems across the institution / estate to balance energy usage, with support for the move to renewable energy, e.g. solar / wind power. We should be thinking about all our carbon emissions and offset IT

We may be able to measure energy consumption in buildings, with appropriate KPIs, to determine where to save money and demonstrate the improvements that have been made

There may be a tension between innovation and environmental sustainability, e.g. speed, accessibility, printing, on-line submissions and marking

Many stakeholders have multiple devices, including desktop, lap top, tablet and mobile phone – "less stuff"

24 * 7 * 52 availability is not compatible with environmental sustainability. Services should be "always available when needed", with resilience only where it is needed

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Environmental Sustainability (cont)

The key technologies and practices that enable sustainability are:

- Virtualisation (Server and Desktop)
- Managed Printing
- Localised cooling, free air cooling and Data Centre optimisation
- Outsourcing and Shared Services
- Video conferencing and Unified Communications
- IT Diagnostics
- Performance Measurement and power management
- Replacement of old PCS (especially CRT monitors)
- Students providing their own equipment
- Standard applications for HE, e.g. Payroll, Finance
- Cloud Computing
- Innovative technologies – new battery types, kinetic power and energy efficient buildings
- Procurement
- Remove paper based processes
- Home working (with a policy to make it work)
- Electric cars

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Environmental Sustainability (cont)

Services are often configured to meet peak demand and this does not support sustainability. It is also important to challenge local duplication of equipment, e.g. multiple data centres

Currently, good practice may be driven by cost and environmental sustainability may be driven by different , and harder to measure metrics, such as reputation

Can we ever achieve sustainable IT? Is it more about being less un-sustainable?

There may be a trade-off between service levels and environmental factors, e.g. Power saving may lead to users experiencing “boot up” delays. Power managing facilities can create negative feedback

Does environmental sustainability actually improve the student experience? Is it actually just a comfort / hygiene factor

Shared services may have a sustainability benefit, particularly local shared services. It may also be helpful to use local hardware suppliers

It is sensible to consider the bigger picture, e.g. thin client reduces power consumption on the desktop and increases it in the Data Centre. There is also no point turning off IT if money is being wasted on energy in other areas

As technologists, we should be encouraging work practices that use technology more sustainably, e.g. students being able to access more of their learning environment without needing to travel, giving them more flexibility in the way they engage with their learning

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Environmental Sustainability (cont)

Senior level support is needed for the introduction of new initiatives, such as switching off PCs at night, and the environmental agenda needs to be included in project governance

The attitude of an organisation to staff may change to enable them to work at home, with a shift to an output driven approach that does not require staff to be on-line during office hours. Staff often get more done at home, due to fewer interruptions . There may be benefits for staff in lower travel costs

There is a risk that students become less mobile and do not attend the institution, and they may be less engaged. There is a sense that students like to talk to a real person. On the other hand, it could enable students to study at a time and in a way that suits them. The organisation will adapt to new student behaviours

It would be helpful if the IT service were accountable for their energy costs and carbon was managed like money

If we achieve environmental sustainability, students won't feel that their education comes at an environmental cost and sustainability will not be in the UCISA top concerns. Recruitment and the National Student Survey will improve. HE could be a role model not just for students, but in society

Organisations will see their energy costs reduce and will need to provide fewer physical resources for students

The organisation will see improvements in the environmental league table position and there may be an opportunity to benchmark environmental metrics consistently and link this to funding or fines

Human Sustainability Questions

1. How will the IT team of the future be organised and what commonly held values, beliefs and behaviours will need to change?

2. What skills that we have now will we no longer need and what new skills will be required and how will the change be managed?

3. How will we know when we have a sustainable IT team and how will it improve the student experience?

Human Sustainability

The IT team will become more service and business focussed, with a shift to service management not server management, with a shift to shorter project lifecycles. This will mean IT staff will specialise less in particular technologies and become more focussed on service delivery. The team will be smaller with staff having a broader range of skills, and a clear understanding of how they contribute to the core business

The IT team may also become more support focussed rather than development., e.g. using software tools to do remote desktop problem analysis. There will be a shift towards “How do I?” rather than “It’s broken, please fix it”. IT support staff will become more valuable than back room IT people and will be working with the users in a partnership way with a greater sense of shared values

There will be a tendency to stop doing things that have always been done, with a move to aggregate demand and outsource commoditised services and move away from bespoke systems

Delivering a good enough service, with 80% of needs met, may be acceptable. The IT team will look at things from more than just a technical perspective, and will be more focussed on “fitness for purpose” There will be more evaluation of value and benefit rather than technology

Staff will need to become business experts to understand requirements and how to implement them. They will also need to be able to think more broadly to get to the root cause of an issue, rather than applying repeated fixes. Staff will also need to develop the skills to monitor and manage shared services

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Human Sustainability (cont)

Staff will also need supplier relationship management skills, contract management skills, negotiation skills, business analysis skills, marketing skills, service based skills, programme management skills and strategic thinking skills

All IT staff will be working with the same operating practices and management structures

It will be important to be clear about the business case of everything that is done, to ensure that projects are not started that cannot be sustained. There will be a need to account for staff costs

Staff will do less of what they want to do and more of what they need to do. They will need to be more flexible and there may be more remote working and virtual teams. Communication and motivation are key when staff are dispersed. There may also be IT teams that are virtually and globally available whilst not being tied to a specific institution

Users will become more impatient with applications and resources and usability will become a more important issue. The IT team will be more about helping users to exploit the technology to get the most out of it and will be supporting the innovators of the future

Staff will be highly employable with main stream skills, possibly with greater use of contract staff (with appropriate knowledge retention). There may be more staff who are experts in pedagogy and research and can bridge to IT

There will be a need to appropriately direct resources, whilst retaining a degree of innovation and risk

Human Sustainability (cont)

More hosting , mobile technologies and Cloud Computing will enable IT staff to move away from the “what” to the “how”

Coping with the flood of information is an issue, so the knowledge worker will become more prevalent as technology becomes configurable and more reliable

IT will need to be at the top table, as any strategic change will need IT support. Change management skills will need to improve, particularly communication in business language and engagement skills, as users will need to understand the reasons for change and be able to work with IT with openness and transparency.

Performance management will be important to both recognise and reward excellence and manage poor performance. There may be a need to review staff terms and conditions, approaches to staff development, and career paths

If staff can understand their contribution and the overall need, the student experience, and customer satisfaction generally, will improve through improvements in service delivery

IT will sustain itself by regenerating skills, managing the migration of knowledge and being able to cope with on-going change. There will be a shift from reactive to proactive to predictive service delivery

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