

An exploration of the benefits of e-waste recycling across Queen Mary, University of London

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Introduction

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Queen Mary University of London

- A London university - 31,000 students and 4,500 staff
- IT Services provide technology services:
 - Computer facilities
 - IT infrastructure
- My Role:
 - Head of IT Service Operation
 - Responsible for **computing devices** and **recycling**



E-waste = electronic and electrical waste

- E-waste = fastest growing global pollution problem. 2017: 44 million tonnes disposed (UN Environment, 2019)
- The UK = top-ten e-waste generator (Forti et al, 2020)
- A university = 200 tons of e-waste in one year (Saldana-Duran and Messina-Fernandez, 2020)
- E-waste recycling = toxic processing, exacerbated by shorter product lifecycles

I am leading an initiative to improve e-waste recycling processes

Research Objectives

Key considerations:

Universities occupy a key role

E-waste generation

Organisational outcomes

Sectoral standard setting

Research Aim:

Explore how recycling understanding is driven by the workplace and examine financial implications of e-waste management practices.

Research Questions:

What are drivers of students and staff awareness of e-waste recycling?
Are there financial advantages or disadvantages from e-waste recycling?

Background to the research context

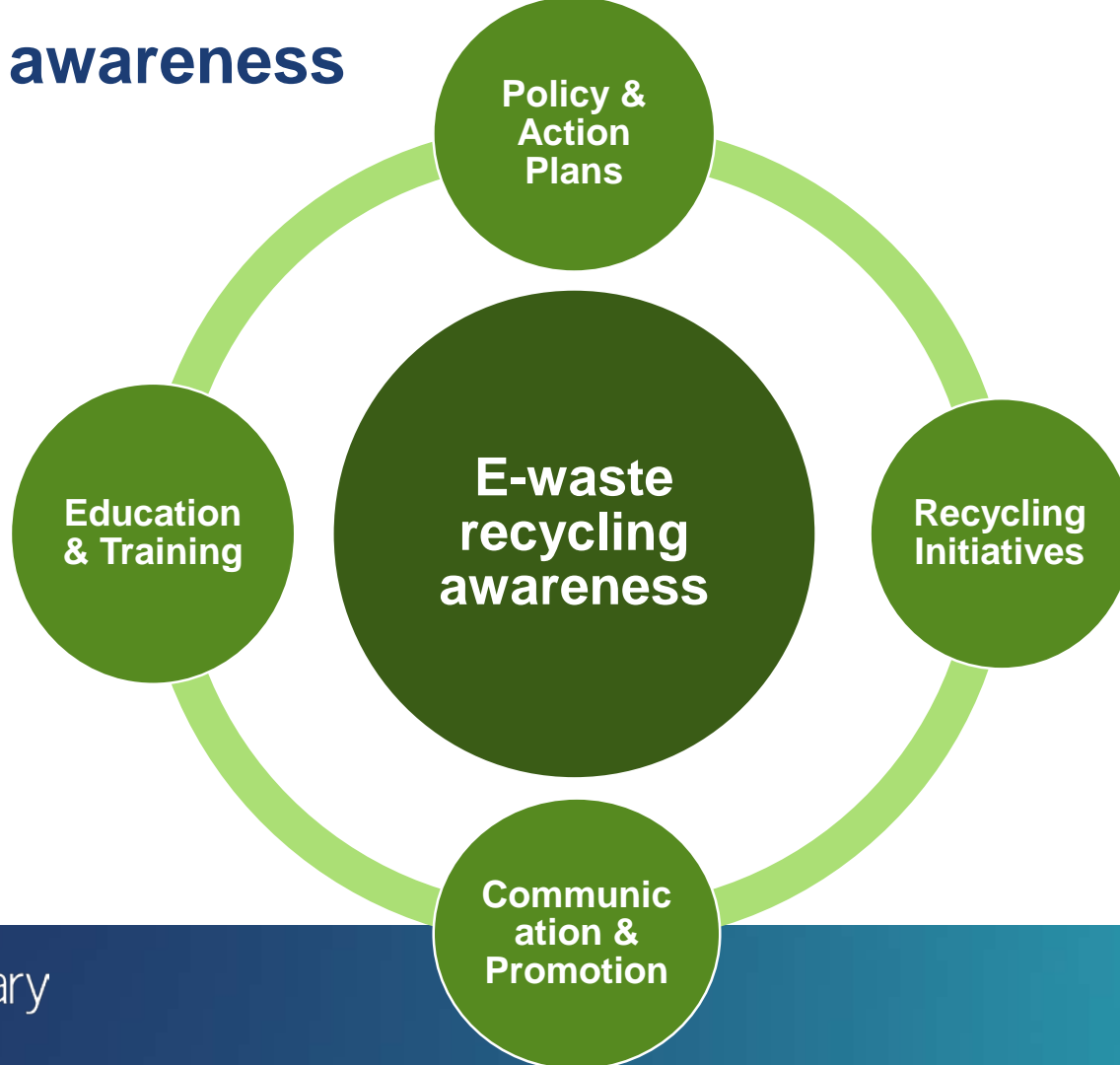
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Improving e-waste recycling

Hornik et al. (1995) found two variables promoting recycling activity and benefits



Recycling awareness



Financial implications of recycling

Financial advantages

- E-waste can be a **revenue source** (Davis and Wolski, 2009)
- Adopting internal recycling/reuse **schemes** (Agamuthu et al., 2015)

Detriments to financial focus

- Recycling carry **notable costs** (Clay, 2005)
- **Missed** money saving activities (Saldana-Duran and Messina-Fernandez, 2020)

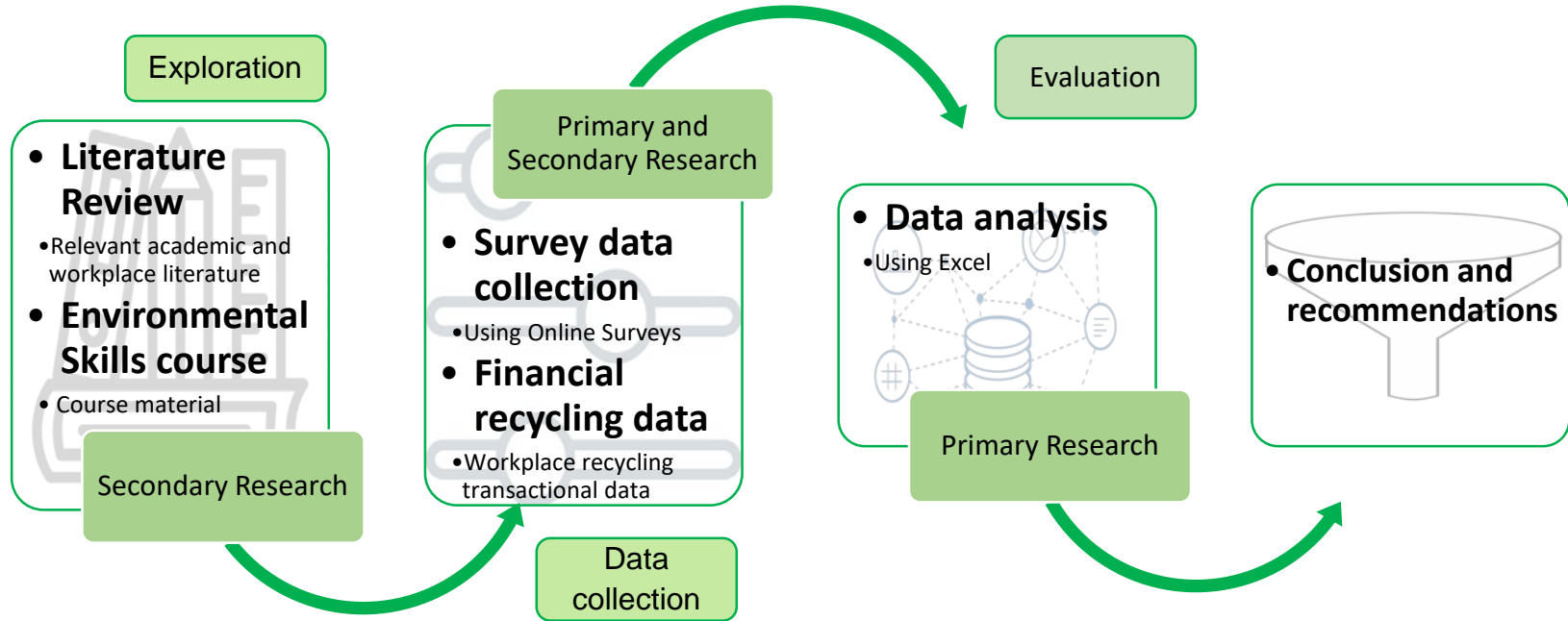
Financial rebates from recycling partner

One e-waste recycle scheme exists

Research method and survey

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Research Method



Primary and Secondary Research

The research:

- Developed my understanding of topic
- Identified gaps to be explored
- Provided the research data
- Answered the research questions

Survey Design:

- Online surveys: quick for large cohorts, short projects

Online Questionnaire:

- Five minute duration for optimal completion rate
- 14 questions; primarily Likert 5 point scale

Distribution:

- Students and staff representing technology users
- Open 17 days to increase responses

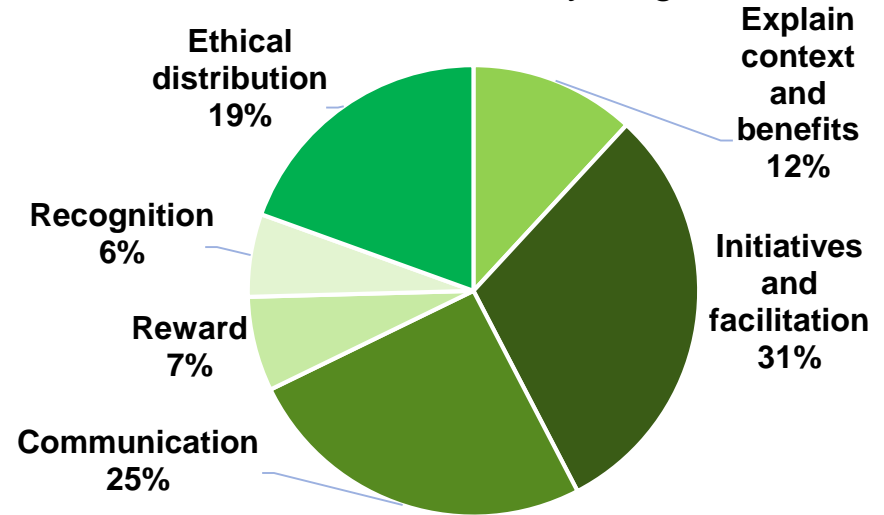
Results and analysis

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Driving awareness - results

- Majority of students and staff unaware of recycling efforts and activities
- Equivalently, most did not find education nor communication increased their knowledge

How can the university help improve e-waste recycling?



Driving awareness - analysis

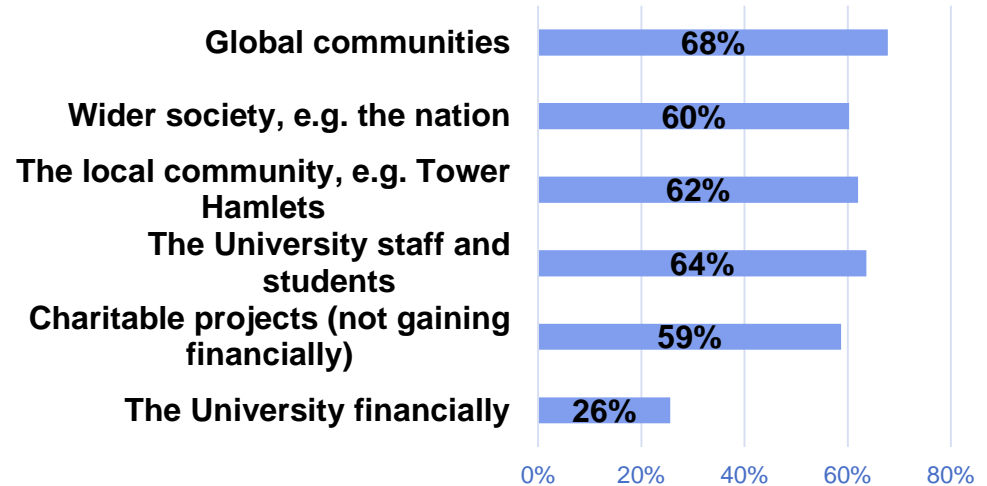
- Disappointing result in an organisation with educational focus
- Policy has not driven awareness, deviating from Vaughter et al. (2015)
- Operationalisation of principles through campus initiatives and facilities could help (Arain et al. 2020)
- Lack of basic understanding of e-waste recycling concept

‘I have very little knowledge of what e-waste and e-waste recycling are.’
(Respondent quote)

Financial advantages and disadvantages - results

- £2000 gain in return for recycling over 3000 devices
- Participants did not consider financial gain important, preferring communities and themselves to benefit

Who should benefit from e-waste recycling:



Financial advantages and disadvantages - analysis

- Recycling processing costs mean no profit
- Support for charitable ventures indicated opposition to financial gain
- Short term financial gain detracts from recycling activity for longer term advantage (Hornik et al., 1995)
- Reuse - saves funding for teaching materials and computing facilities – charities pass financial benefits to local schools

University sustainability ratings (Times Higher Education, 2021): Attract students and staff



Conclusions and recommendations

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Conclusion

Recycling awareness **insufficiently induced to benefit students and staff:**

- Policy needs **embedding in operational activity** engaging students and staff
- **Improve sustainability leadership** through education and communication for a competitive edge to sustainability strategy
- **Promote recycling** innovation and activity through stakeholders

Financial advantage was not obtained:

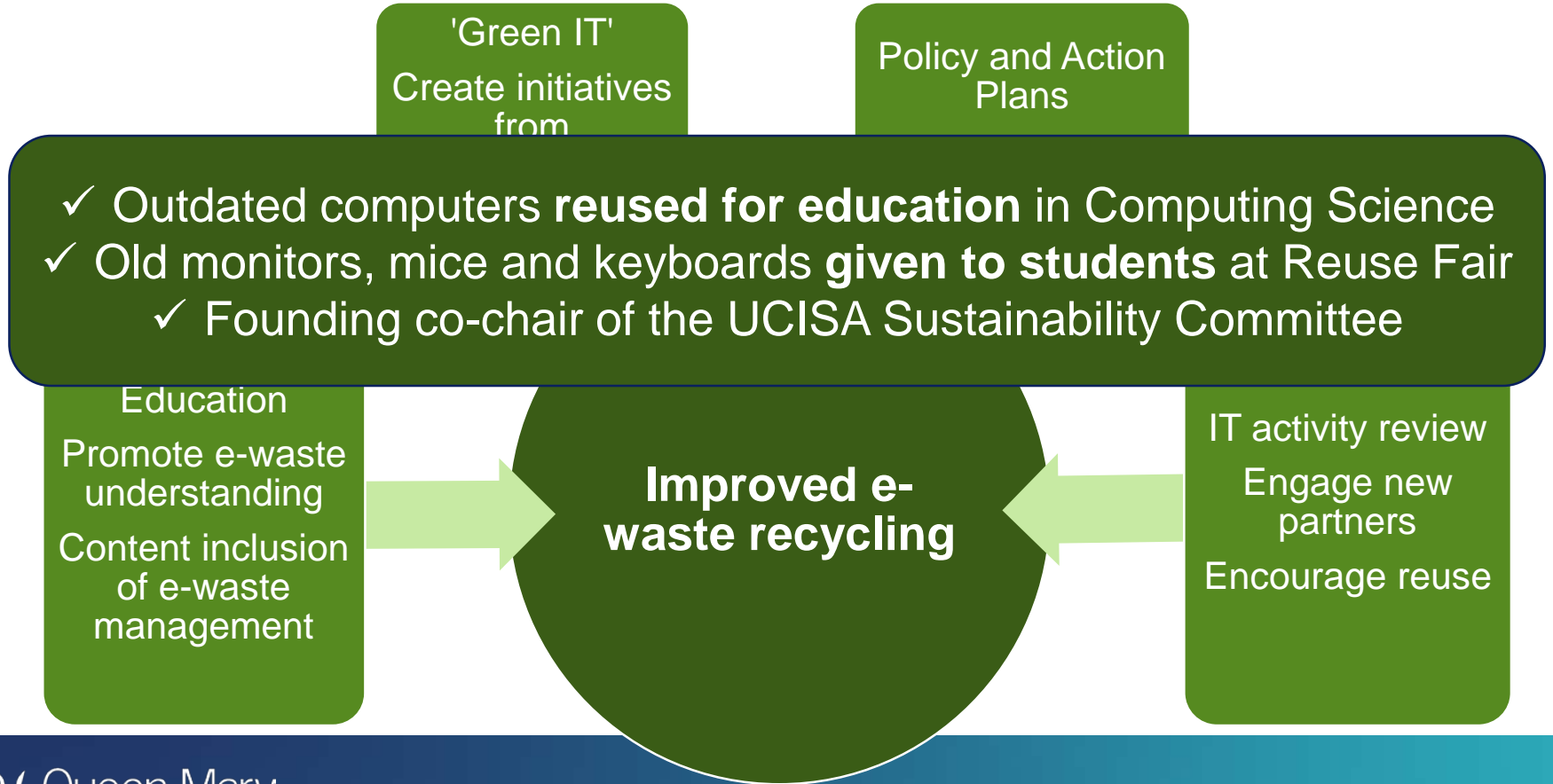
- **Include stakeholder perspectives** to improve e-waste management
- Financial benefits are not seen as important: **benefit by allocating resources to sustainable causes**
- **Set a stronger sustainable agenda** for economic benefits and promote good practice

Notable findings:

- Policy creation insufficient in driving awareness
- Study highlights problem of financial fixation



Recommendations



**‘If we create any kind of waste, we need to deal with its consequences’
(Respondent quote)**

Thank you

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