

Exploring the digital carbon footprint of edtech

Paul Bailey

Head of codesign, Jisc

Education and research improves lives, and technology improves education and research.

That's why we exist.

Our vision is for the UK to be world leaders in technology for education and research.



Resources

- [Exploring Digital Carbon Footprints](https://repository.jisc.ac.uk/8782/1/exploring-digital-carbon-footprints-report.pdf)
<https://repository.jisc.ac.uk/8782/1/exploring-digital-carbon-footprints-report.pdf> - Scott Stonham
- Blog post
<https://codesign.jiscinvolve.org/wp/2022/11/part-1-scaling-education-what-is-the-carbon-impact/> and
<https://codesign.jiscinvolve.org/wp/2022/11/part-2-scaling-education-carbon-calculator/>



Resources

Exploring Digital Carbon Footprints

<https://repository.jisc.ac.uk/8782/1/exploring-digital-carbon-footprints-report.pdf> - Scott Stonham

Scaling education: What is the carbon impact? <https://codesign.jiscinvolve.org/>

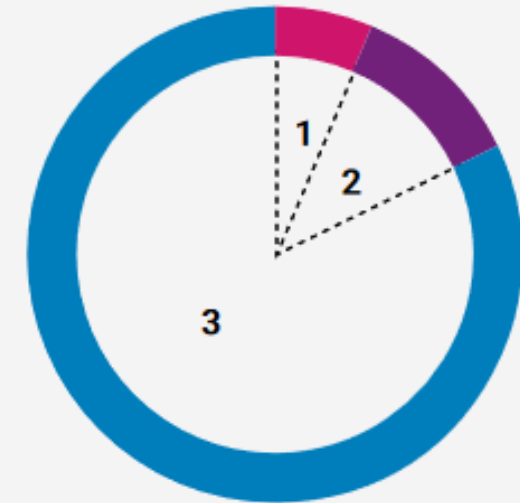


Digital footprint of edtech – it all adds up.....

- Scope 3 Carbon emissions
- Standardised carbon emissions reporting
- Waste - 80% of ITs digital footprint comes from the manufacture and supply of equipment

University of Salford

Carbon emissions scope 1, 2 and 3 (tCO₂e)



Scope 1

Gas, 2988

Scope 2

Electricity, 5496

Scope 3

Procurement, student commuting, Staff commuting, Electricity and Gas Scope 3, Business travel, Student accommodation, other Scope 3: 39,857

Source: University of Salford Scope 3 Emissions Report: Baseline Scope 1, 2 and 3 emissions totals. June 2021

Which has the lowest annual CO2 emissions?

1st

streaming a 2 hr netflix movie (once a week for a year)

2nd

storing 250Gb of data on the cloud for 1 year

3rd

driving 20km (round trip) to work for a meeting in an electric car (once a week for year)

4th

2 hrs video conference call between 2 people (once a week for a year)

Carbon emissions

Activity	Kg CO2e/year
streaming a 2 hr Netflix movie (once a week for a year)	5.72
2 hrs video conference call between 2 people (once a week for a year)	30
driving 20km (round trip) to work for a meeting in an electric car (once a week for year)	65
same using public transport	156
same in a petrol car	250
storing 250Gb of data on the cloud for 1 year	500
return flight from the UK to Hong Kong	5000

Scaling education scenarios

Scenarios	Description	Estimated tCO2 per 1000 extra students per year
Scenario 1: UK student f2f	100% f2f learning. 30 weeks per year UK students and extra building	1286
Scenario 2: International students in UK f2f	100% f2f learning. 30 weeks per year international students and extra building	6262
Scenario 3: 100% online UK students	100% online UK students, no campus costs	535
Scenario 4: 100% online international students	100% online international students, no campus costs	535
Scenario 5: new campus	students attend a newly built campus in UK or overseas	1286
Scenario 6: 2+1 model for international students	2 years local and one year international	2943
Scenario 7: Hybrid 50:50 model	UK based students with online learning 50%	1125
Scenario 8: Accelerated 2-year degree	working 45 weeks per year complete the degree in 2 years	1524 (1016)

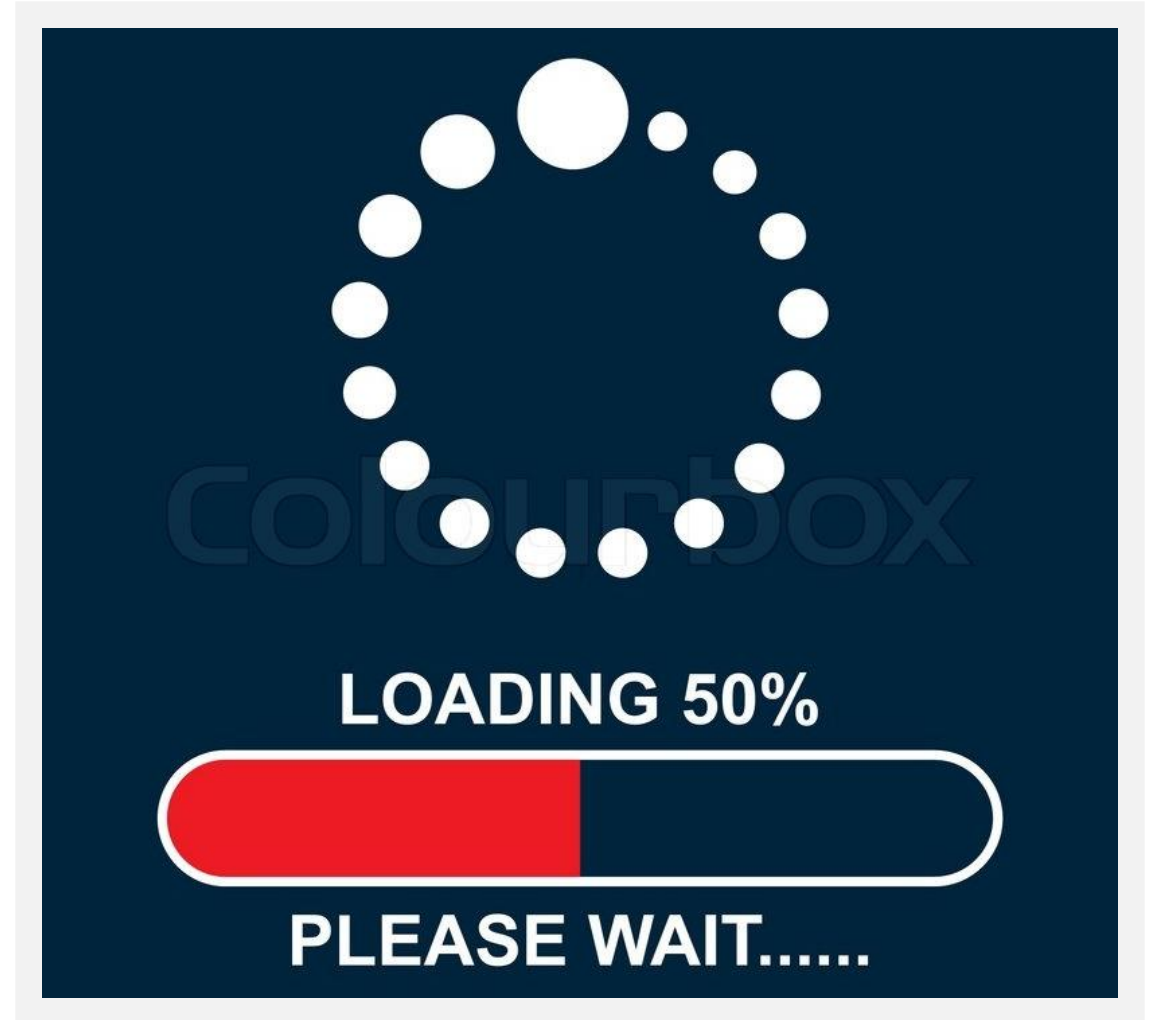
Consider the learners....

Low bandwidth learning

[Learner digital experience insights survey 2021/22](#)

11% stated mobile data costs had made it difficult to learn online

38% stated poor wifi had made it difficult to learn online



From virtual classrooms to the metaverse



<https://www.jisc.ac.uk/news/weston-college-launches-uks-first-virtual-classroom-for-further-education-12-oct-2020>

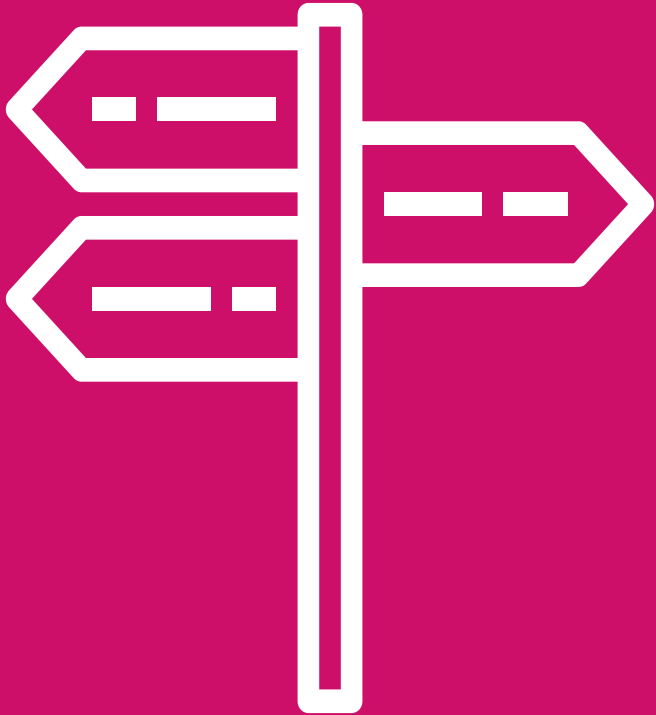
Any questions?

Thank you
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What we do

We provide trusted expert advice and practical assistance

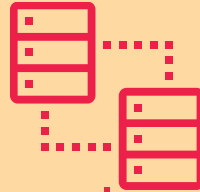


- Providing insight, guidance and thought leadership
- Delivering training and events
- Building communities

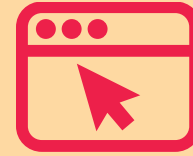
Cloud



**Connectivity and
cyber security**



**Content and
discovery**



Data analytics



We provide critical services in...



Licensing



**Open
research**



**Student
experience**



**Verification
services**

Who are Jisc?

We serve the whole UK:

- All traditional universities and some independent providers
- FE colleges
- All research institutes
- Schools
- Key sector agencies and national institutions such as AdvanceHE, UCAS and NCSC (National Cyber Security Centre)
- Local authorities and adjacent sectors, and global customers

