

SUFFICIENCY NOTICEBOARD

design provocations for futures of sustainability in
scientific computing and digital research infrastructure



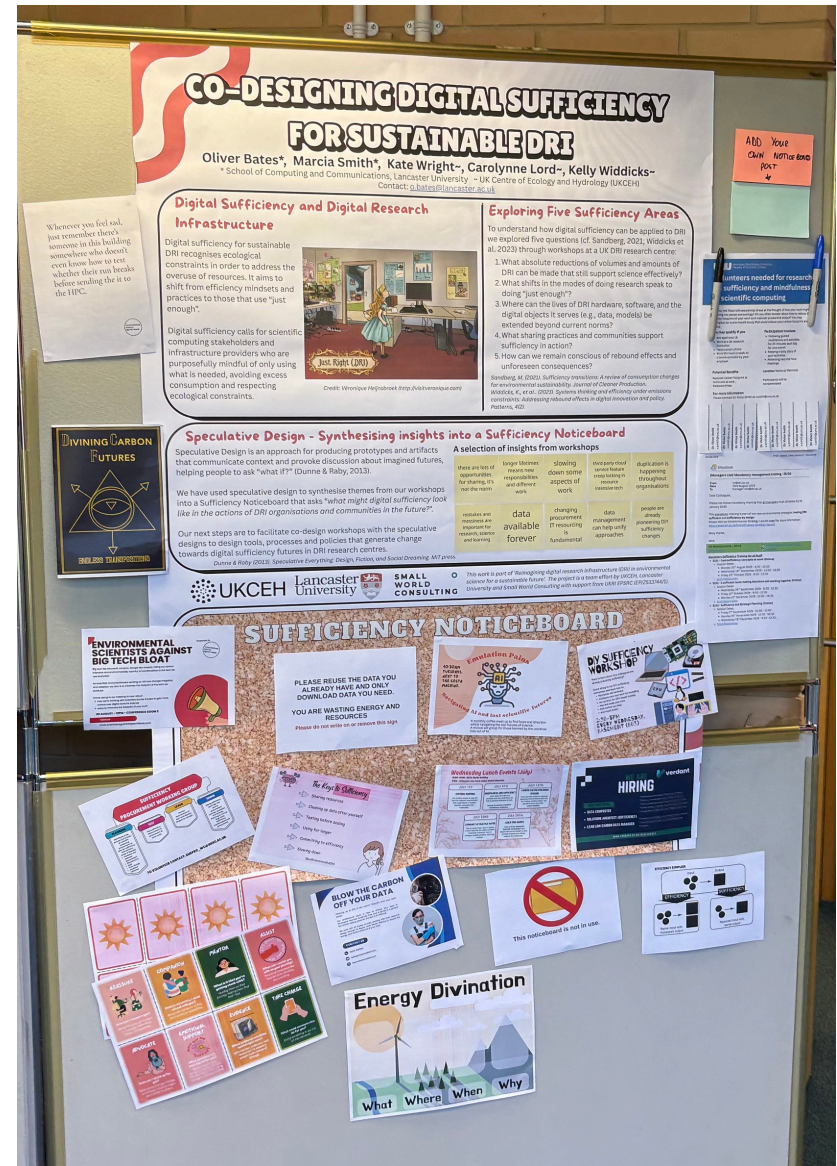
Designed by Oliver Bates

The Sufficiency Noticeboard was produced as part of the [“Reimagining digital research infrastructure in environmental science for a sustainable future”](#) funded by the UKRI EPSRC (EP/Z533744/1)

The Sufficiency Noticeboard is a speculative design that asks *“what might digital sufficiency look like in the actions of DRI organisations and communities in the future?”*

The speculative designs featured in this booklet accompany the poster “Co-designing digital sufficiency for sustainable DRI” by Oliver Bates, Marcia Smith, Kate Wright, Carolynne Lord and Kelly Widdicks.

The poster was presented at the NetDrive Spring Meetup 2026 at the University of Oxford winning Best Poster Award.



CO-DESIGNING DIGITAL SUFFICIENCY FOR SUSTAINABLE DRI

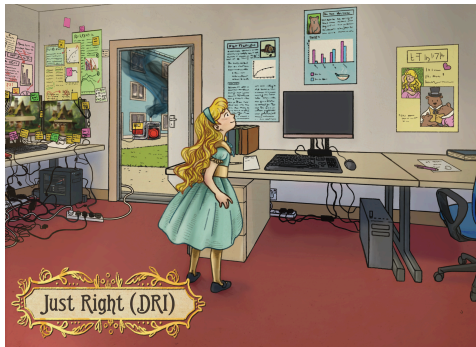
Oliver Bates*, Marcia Smith*, Kate Wright~, Carolynne Lord~, Kelly Widdicks~

* School of Computing and Communications, Lancaster University ~ UK Centre of Ecology and Hydrology (UKCEH)
Contact: o.bates@lancaster.ac.uk

Digital Sufficiency and Digital Research Infrastructure

Digital sufficiency for sustainable DRI recognises ecological constraints in order to address the overuse of resources. It aims to shift from efficiency mindsets and practices to those that use “just enough”.

Digital sufficiency calls for scientific computing stakeholders and infrastructure providers who are purposefully mindful of only using what is needed, avoiding excess consumption and respecting ecological constraints.



Credit: Véronique Heijnsbroek (<http://visitveronique.com>)

Exploring Five Sufficiency Areas

To understand how digital sufficiency can be applied to DRI we explored five questions (cf. Sandberg, 2021; Widdicks et al. 2023) through workshops at a UK DRI research centre:

1. What absolute reductions of volumes and amounts of DRI can be made that still support science effectively?
2. What shifts in the modes of doing research speak to doing “just enough”?
3. Where can the lives of DRI hardware, software, and the digital objects it serves (e.g., data, models) be extended beyond current norms?
4. What sharing practices and communities support sufficiency in action?
5. How can we remain conscious of rebound effects and unforeseen consequences?

Sandberg, M. (2021). *Sufficiency transitions: A review of consumption changes for environmental sustainability*. *Journal of Cleaner Production*.
Widdicks, K., et al.. (2023). *Systems thinking and efficiency under emissions constraints: Addressing rebound effects in digital innovation and policy*. *Patterns*, 4(2).

Speculative Design - Synthesising insights into a Sufficiency Noticeboard

Speculative Design is an approach for producing prototypes and artifacts that communicate context and provoke discussion about imagined futures, helping people to ask “what if?” (Dunne & Raby, 2013).

We have used speculative design to synthesise themes from our workshops into a Sufficiency Noticeboard that asks “*what might digital sufficiency look like in the actions of DRI organisations and communities in the future?*”.

Our next steps are to facilitate co-design workshops with the speculative designs to design tools, processes and policies that generate change towards digital sufficiency futures in DRI research centres.

Dunne & Raby (2013). *Speculative Everything: Design, Fiction, and Social Dreaming*. MIT press.

A selection of insights from workshops

there are lots of opportunities for sharing, it's not the norm	longer lifetimes means new responsibilities and different work	slowing down some aspects of work	third party cloud service feature creep locking in resource intensive tech	duplication is happening throughout organisations
mistakes and messiness are important for research, science and learning	data available forever	changing procurement IT resourcing is fundamental	data management can help unify approaches	people are already pioneering DIY sufficiency changes



UKCEH

Lancaster University



SMALL WORLD CONSULTING



This work is part of ‘Reimagining digital research infrastructure (DRI) in environmental science for a sustainable future’. The project is a team effort by UKCEH, Lancaster University and Small World Consulting with support from UKRI EPSRC (EP/Z533744/1).

SUFFICIENCY NOTICEBOARD

ENVIRONMENTAL SCIENTISTS AGAINST BIG TECH BLOAT

Supported by

computational
science
against waste

Big tech like Microsoft, Amazon, Google are covertly rolling out carbon intensive and environmentally harmful AI functionalities to the tech we use everyday!

As scientists and practitioners working on climate change mitigation and adaption our aim is to minimise the footprint of the work we produce.

Come along to our meeting to hear about:

- how we're working with scientists across Europe to gain more control over digital tools for science
- ways to minimise the footprint of your work

20 AUGUST - 12PM - CONFERENCE ROOM 2

SIGN UP

www.scientistsagainstbigtechbloat.com



BLOW THE CARBON OFF YOUR DATA

Cleaning up to 67% of the carbon footprint from your data stores.

Our professional team is here to ensure your data is thoroughly cleaned, duplicate-free, and is stored in a perfect low carbon resting place for the rest of it's lifetime.

We work with all scales of data, working with from research design through to legacy data stores helping to reduce the energy and carbon footprint of your data.

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WE ARE HIRING



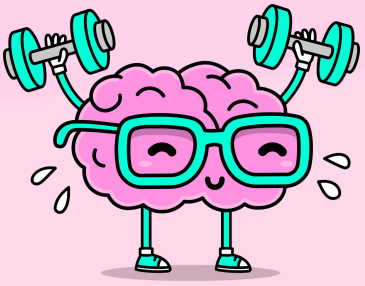
JOB POSITIONS

- **DATA COMPOSTER**
- **SOLUTIONS ARCHITECT (SUFFICIENCY)**
- **LEAD LOW CARBON DATA MANAGER**

We are hiring across a range of digital roles to support sufficiency transformation and low carbon transition of scientific computing research infrastructure across the UK. You'll be working in a dynamic team with public sector clients to rapidly deliver carbon reductions in digital infrastructure.

At Verdant we are building teams to design systemic solutions to ensure essential services are sustained during global disruptions.

WWW.VERDANT.CO.UK/SUFFICIENCY



The Keys to Sufficiency

- ➔ Sharing resources
- ➔ Cleaning up data after yourself
- ➔ Testing before scaling
- ➔ Using for longer
- ➔ Committing to efficiency
- ➔ Slowing down

@sufficientmindfulDRI



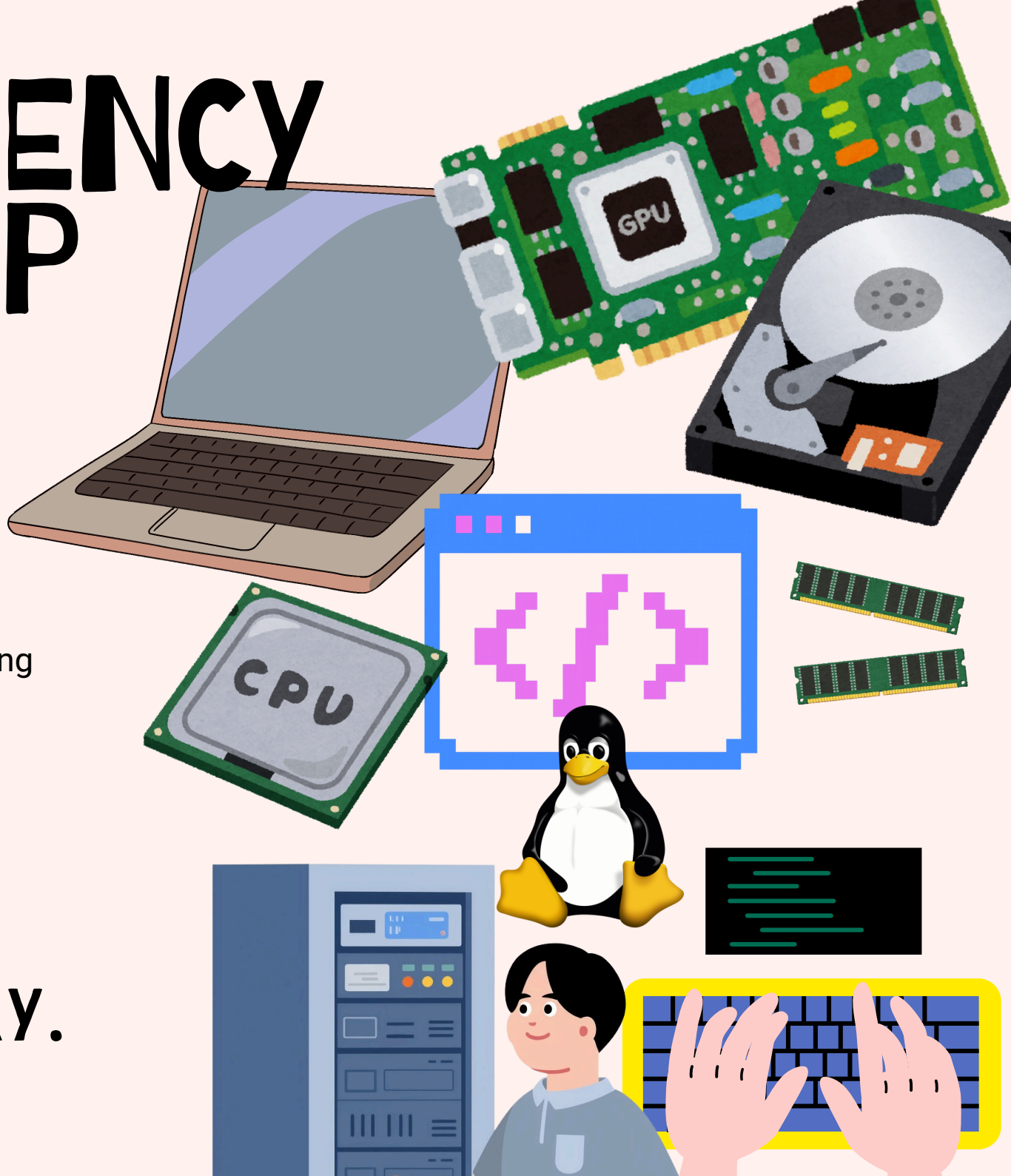
DIY SUFFICIENCY WORKSHOP

Want to learn about how colleagues are already practicing sufficiency?

Come along to our DIY sufficiency workshops and learn how to:

- repurpose old hardware
- configure your own tech for modelling
- set up linux for GPU based models
- test and scale your runs
- look before you leap
- and much more!

2:30-5PM
EVERY WEDNESDAY.
BASEMENT (B03)



REASSURE



How can I reassure you?

Being the point of contact to reassure them when things are uncertain.

COMPANION



What is something I could attend with you?

Being with someone to help them confront something.

MENTOR



What is it that you're getting stuck with?

Guiding them on their journey, helping them find their feet

ASSIST



What can I assist you with on your journey?

Practical assistance like coordination, planning, documenting.

ADVOCATE



How can I speak up for you?

When going through change, unforeseen impacts might be invisible to others.

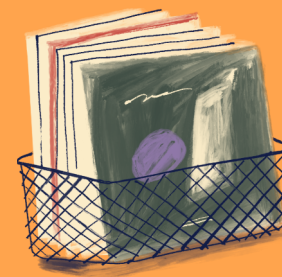
EMOTIONAL SUPPORT



What emotions are showing up for you?

Being present with emotions, letting them be felt and heard whilst going through a change process

EVIDENCE



What evidence would be useful right now?

Information, evidence, and resources to support people make sense of change.

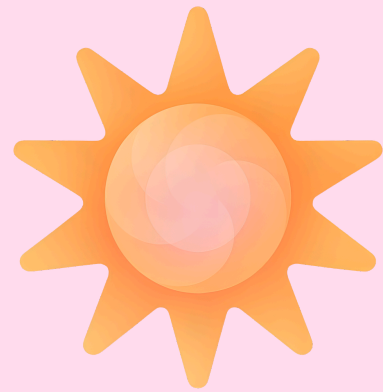
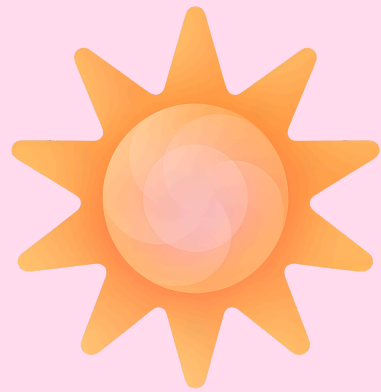
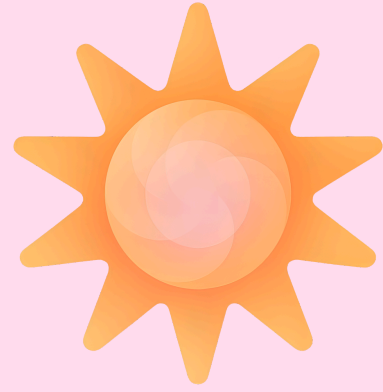
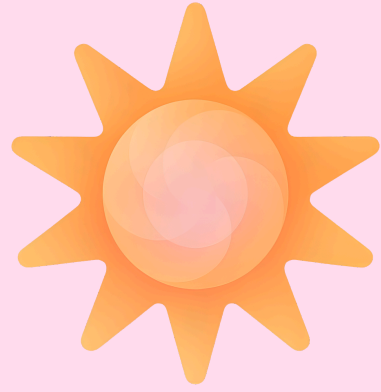
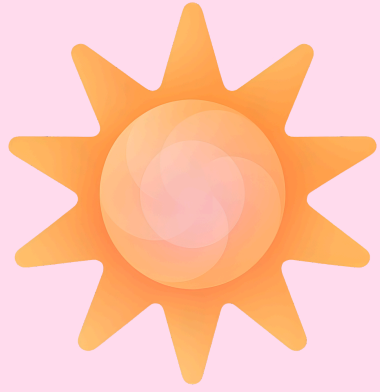
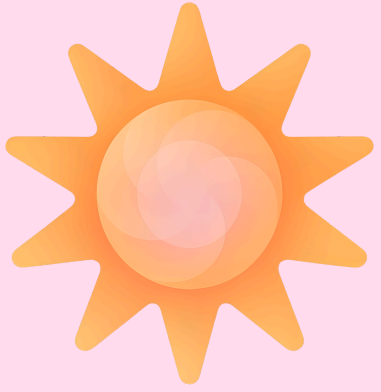
TAKE CHARGE



What could someone else do for you?

Doing something in service of the individual.

BACK



Wednesday Lunch Events (July)

12:00 -13:30 - B243, Blythe Building

BYOL - bring your own lunch unless stated otherwise

JULY 1ST

SYSTEMIC MAPPING

Our monthly session to map and track the systemic environmental and social impacts of making scientific computing more sustainable.

JULY 8TH

MINDFULNESS AND SUFFICIENCY

Learn about the sufficiency principles and how mindfulness can help us practice sufficiency at work.

Include 15 minutes of guided mindfulness meditation.

JULY 15TH

CARBON CALCULATOR DEMO SESSION

Come and help us test our internally developed environmental impact tool for AI tokens, training models, and general AI use in your work.

Lunch included!

JULY 22ND

COMMUNITY OF PRACTICE TASTER

This is a taster event, open to anyone, to learn about the low carbon modellers community of practice, how it's changing modelling practice, and to get involved

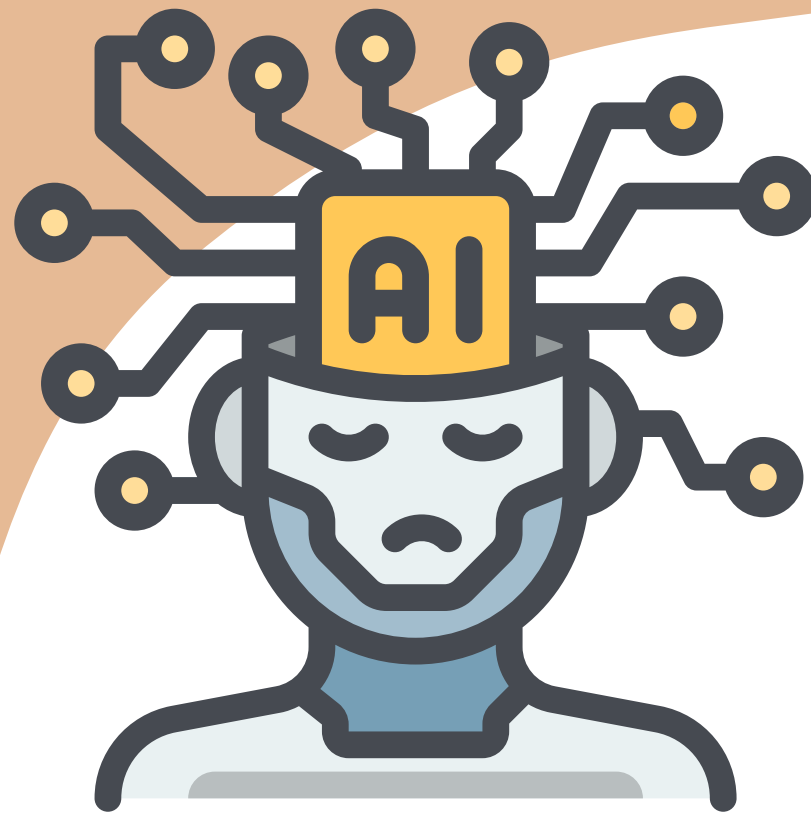
JULY 29TH

LUNCH TIME GAMES!

Come and play **Solarpunk Scientific Computing** where players work as tech doula's to save scientific progress from climate collapse and outsourcing

Emulation Pains

10:30AM
TUESDAYS.
NEXT TO
THE COSTA
MACHINE.



Navigating AI and lost scientific futures

A monthly coffee meet up to find hope and direction whilst navigating the lost futures of science.
A mutual aid group for those harmed by the universal role out of AI.

Whenever you feel sad,
just remember there's
someone in this building
somewhere who doesn't
even know how to test
whether their run breaks
before sending the it to
the HPC.



**PLEASE REUSE THE DATA YOU
ALREADY HAVE AND ONLY
DOWNLOAD DATA YOU NEED.**

**YOU ARE WASTING ENERGY AND
RESOURCES**

Please do not write on or remove this sign



This noticeboard is not in use.

Volunteers needed for research on sufficiency and mindfulness in scientific computing

Do you feel filled with exestential dread at the thought of how your work might be harming the planet and ecology? Do you often wonder about how to reduce the carbon footprint of your work and maintain productive output? You may beeligible for a one-month study that could reduce your carbon footprint and stress.

You may qualify if you

- Are aged over 18
- Work at a UK research institution
- Have a smart phone
- Work 20+ hours a week on a device provided by your employer

Participation involves

- Following guided meditations and activities for 20 minutes each day for one month
- Keeping a daily diary of your activities
- Attending two one hour meetings

Potential Benefits

Reduced carbon footprint at home and at work.
Reduced stress.

Location: National (Remote)

Participants will be compenstated

For more information

Please contract Dr Victor Smith at v.smith@unu.ac.uk

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SUFFICIENCY PROCUREMENT WORKING GROUP

PLANNING

Identifying areas, policies and process of scientific computing procurement as sites for sufficiency interventions.

Areas of interest:

- Hardware and software procurement
- Maintenance
- SaaS
- Data storage
- Hardware Lifetimes

TEST

Test sufficiency interventions to procurement at small scale.

LEARN

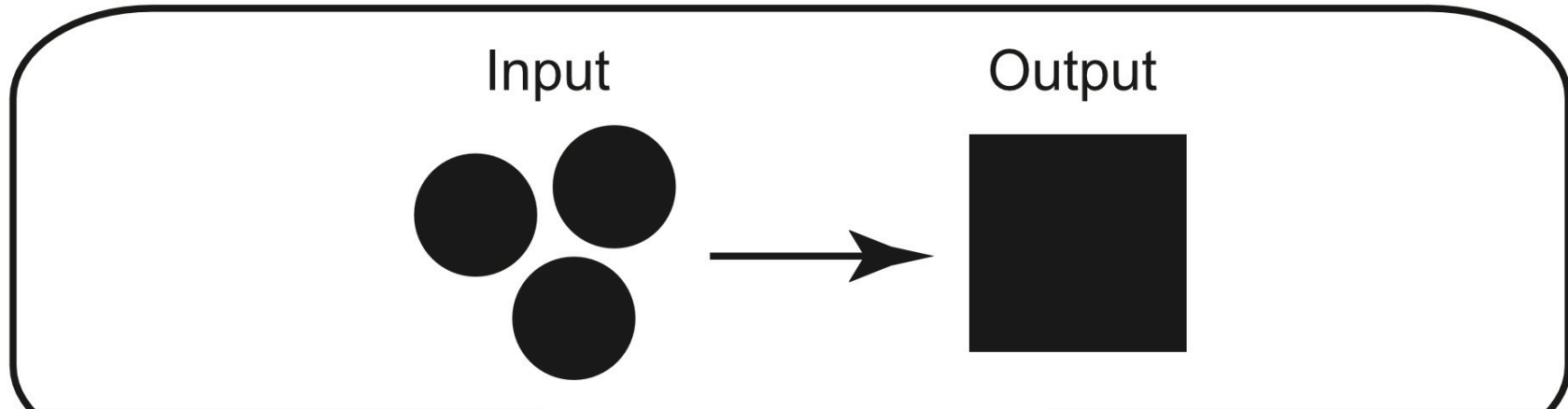
Monitor interventions to learn and develop insights for change. ,

GROW

Taking sufficiency learnings into central procurement policies, processes and services. Planning to roll out large scale sufficiency transformations to procurement.

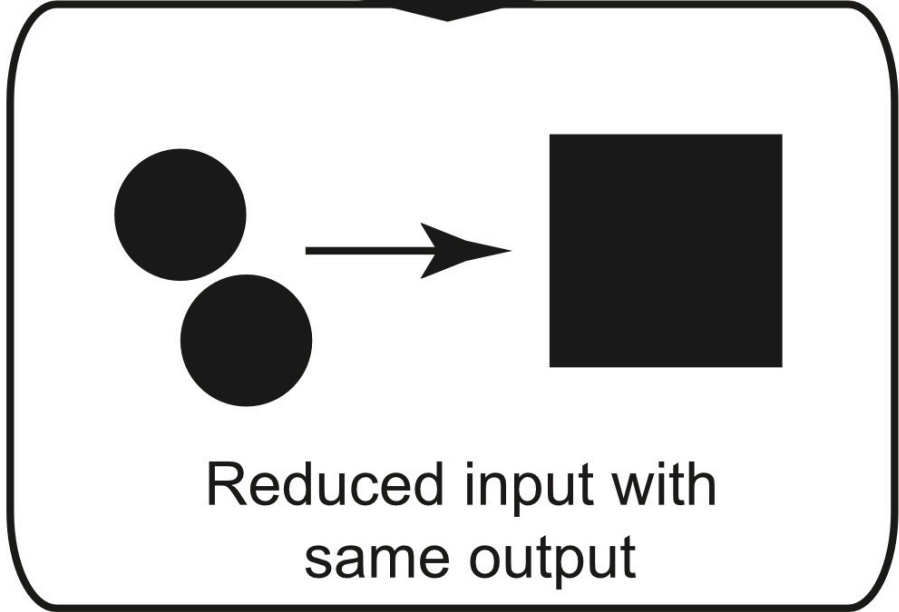
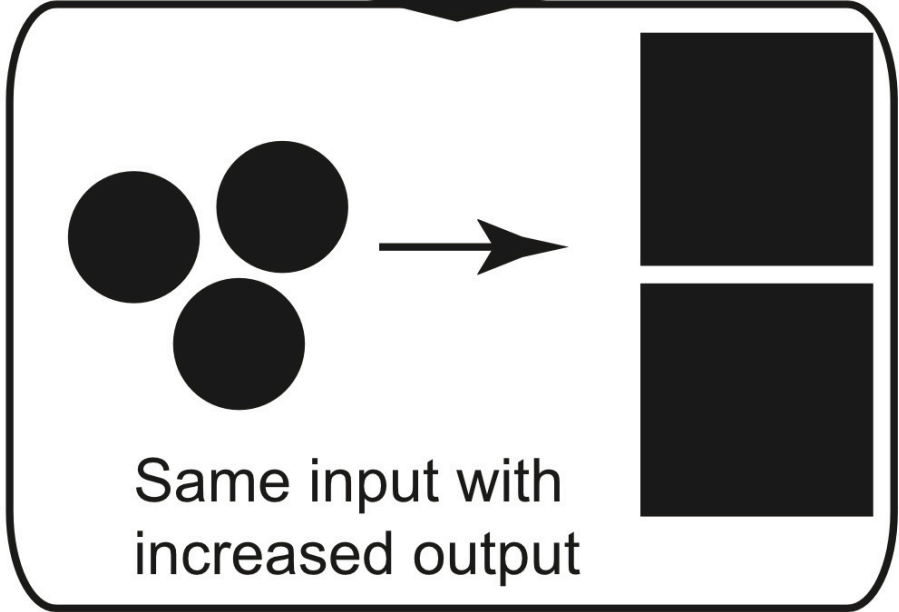
TO VOLUNTEER CONTACT: SUSPRO_WG@UKRC.AC.UK

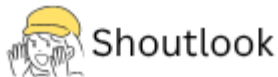
EFFICIENCY SIMPLIFIER



EFFICIENCY

SUFFICIENCY





[Managers List] Mandatory management training - 29/30

From hr@dri.ac.uk
Date 23rd August 2029
To manager-list@dri.ac.uk

Dear Colleagues,

Please see below mandatory training that all managers must complete by 15 January 2030.

This mandatory training is part of our new environmental strategies: **making DRI sufficient** and **sufficiency by design**.

Please visit our Environmental Strategy Launch page for more information:
<https://www.dri.ac.uk/hr/sufficiency-strategy-launch>

Many thanks,

Asha

HR Representative - DRIUK
HR@dri.ac.uk



[Digital Research Institute UK](#)
[LinkedIn](#)

Mandatory Sufficiency Training for all Staff

- **S101 - Core sufficiency concepts at work (Online)**
 - Session Dates:
 - Monday 20th August 2029 - 9:30 - 12:30
 - Wednesday 19th September 2029 - 13:30 - 16:30
 - Friday 25th October 2029 - 9:30 - 12:30
 - [S101 Registration](#)
- **S102 - A sufficient team: making decisions and working together (Online)**
 - Session Dates:
 - Wednesday 26th September 2029 - 9:30 - 12:30
 - Friday 12th October 2029 - 9:30 - 12:30
 - Monday 12th November 2029 - 13:30 - 16:30
 - [S102 Registration](#)
- **S103 - Sufficiency and Strategic Planning (Online)**
 - Session Dates:
 - Friday 2nd November 2029 - 10:00 - 13:00
 - Monday 26th November 2029 - 13:30 - 16:30
 - Wednesday 19th December 2029 - 9:30 - 12:30
 - [S103 Registration](#)