

# CO-DESIGNING DIGITAL SUFFICIENCY FOR SUSTAINABLE DRI

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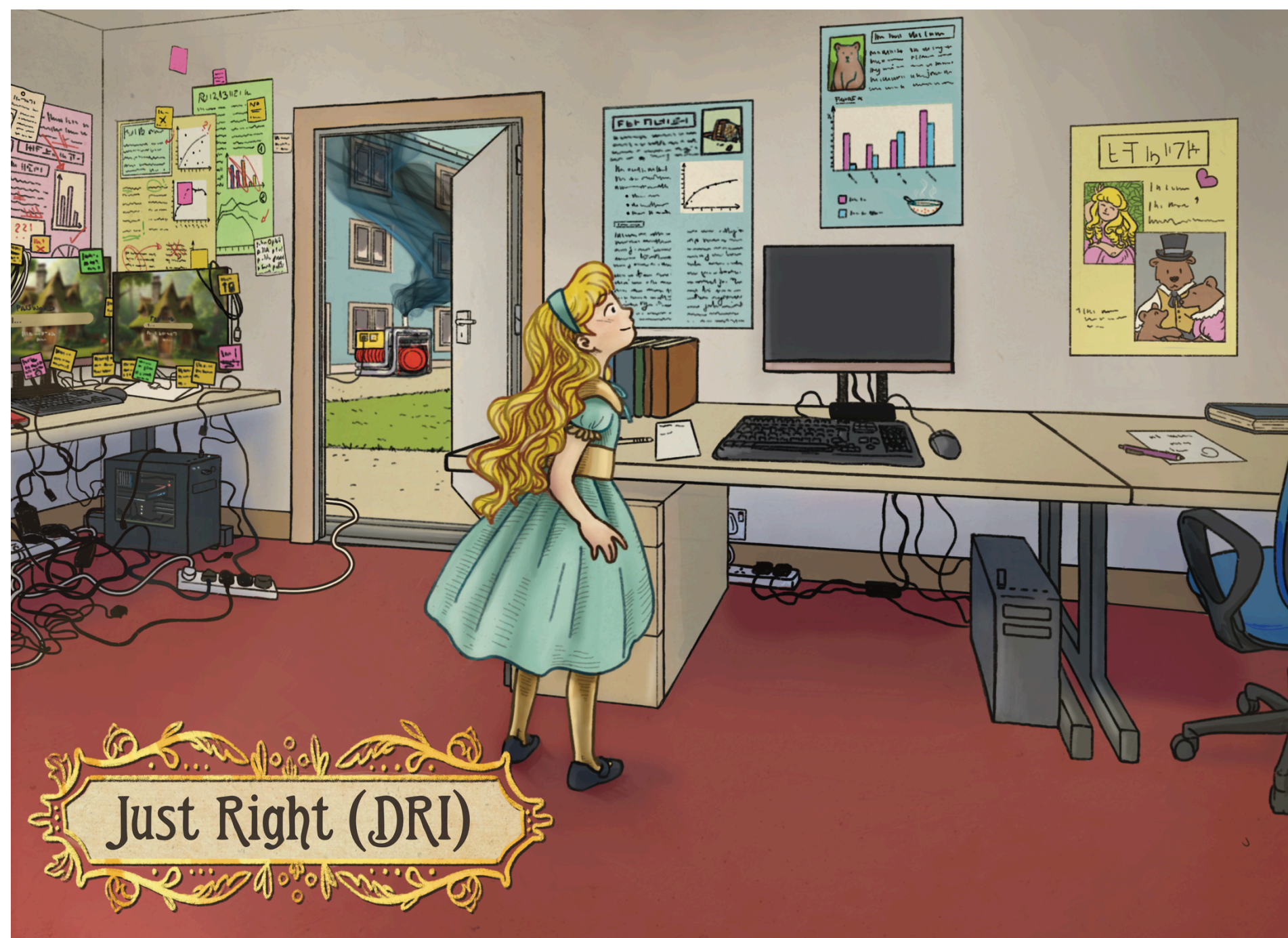
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## Digital Sufficiency and Digital Research Infrastructure

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).

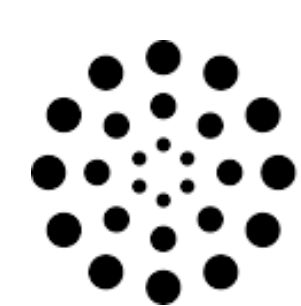
We have used speculative design to synthesise themes from our workshops into a Sufficiency Noticeboard that asks “*what might digital sufficiency look like in the actions of DRI organisations and communities in the future?*”.

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



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# SUFFICIENCY NOTICEBOARD