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Computing Within Limits

Maria Nylund and Erik Husom

June 2026



◀ Sustainable Communication Technologies

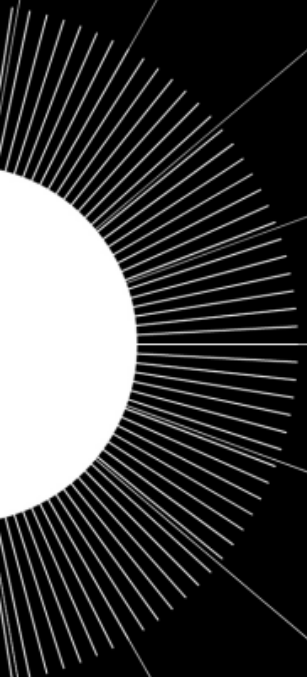
Human-Computer Interaction



Trustworthy Green IoT Software



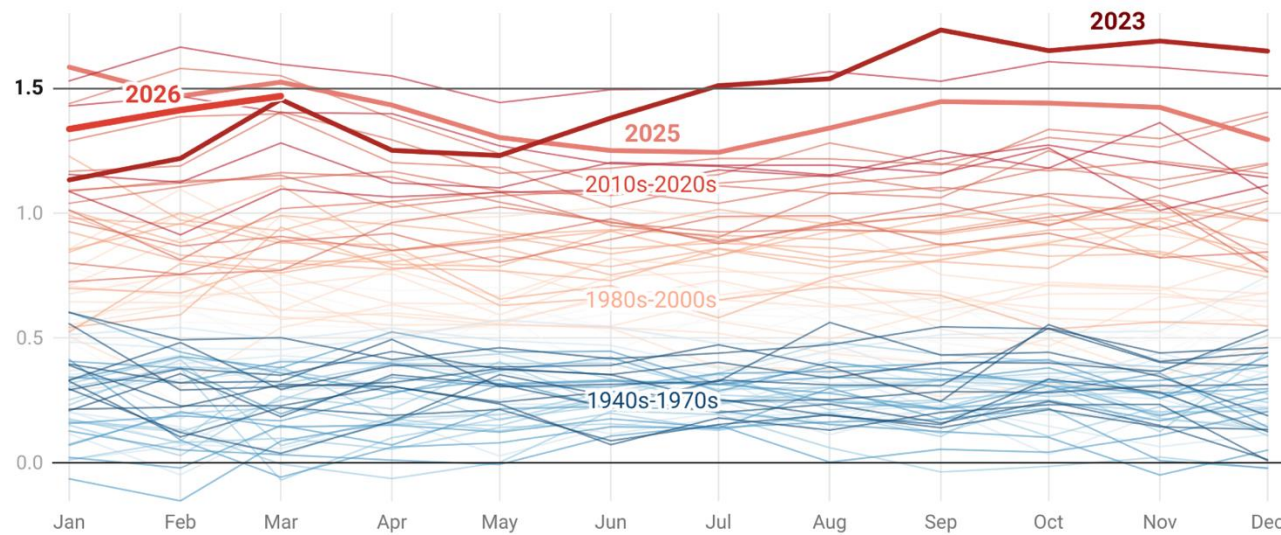
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The world now

Monthly global temperature anomalies

Degrees C relative to 1850-1900 average

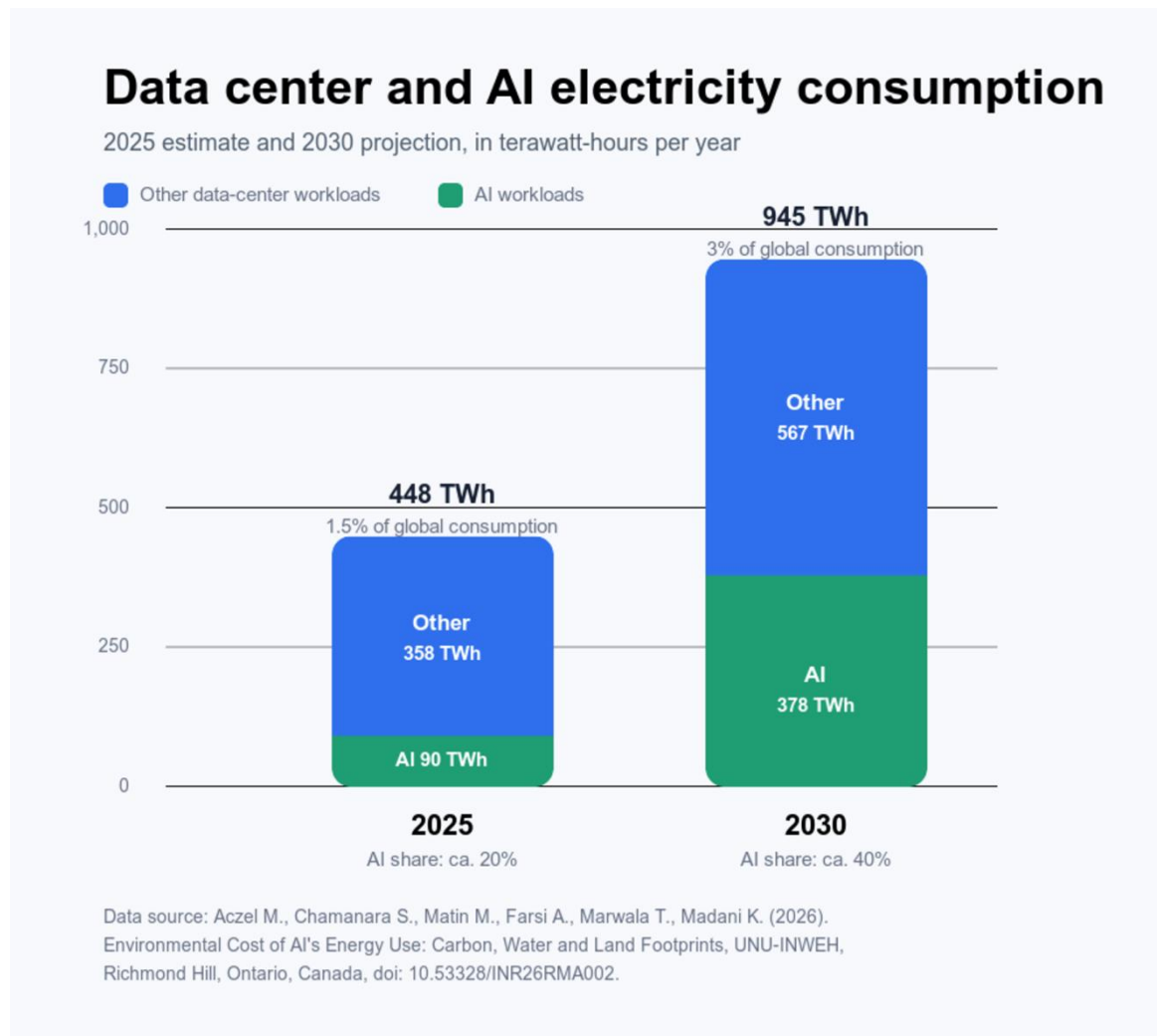


Source: Berkeley Earth, GISTEMP, NOAA GlobalTemp, HadCRUT5, and ERA5

CarbonBrief
CLEAR ON CLIMATE

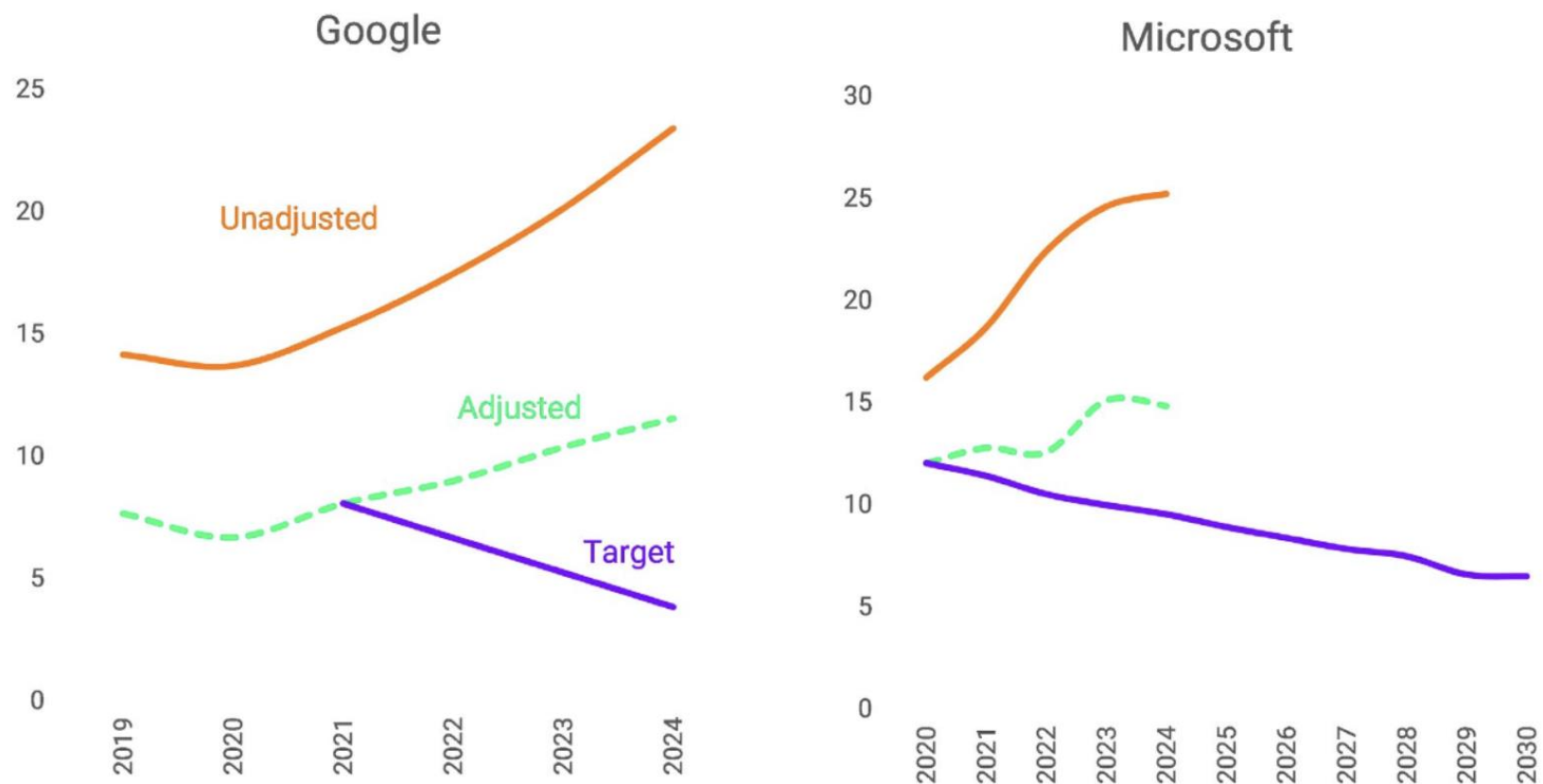
- Energy crisis caused by the conflict in the Middle East, possibly the biggest in history according to the head of the International Energy Agency (IEA)
- Doomsday Clock maintained by the Bulletin of the Atomic Scientists since 1947 symbolises how close humans are to extinction. In 2026 it has been set to its **closest**.

Generative AI – a new strain on the limits



Generative AI – a new strain on the limits

Target emissions (purple) vs actual emissions (orange) in megatons of CO₂eq





Outline

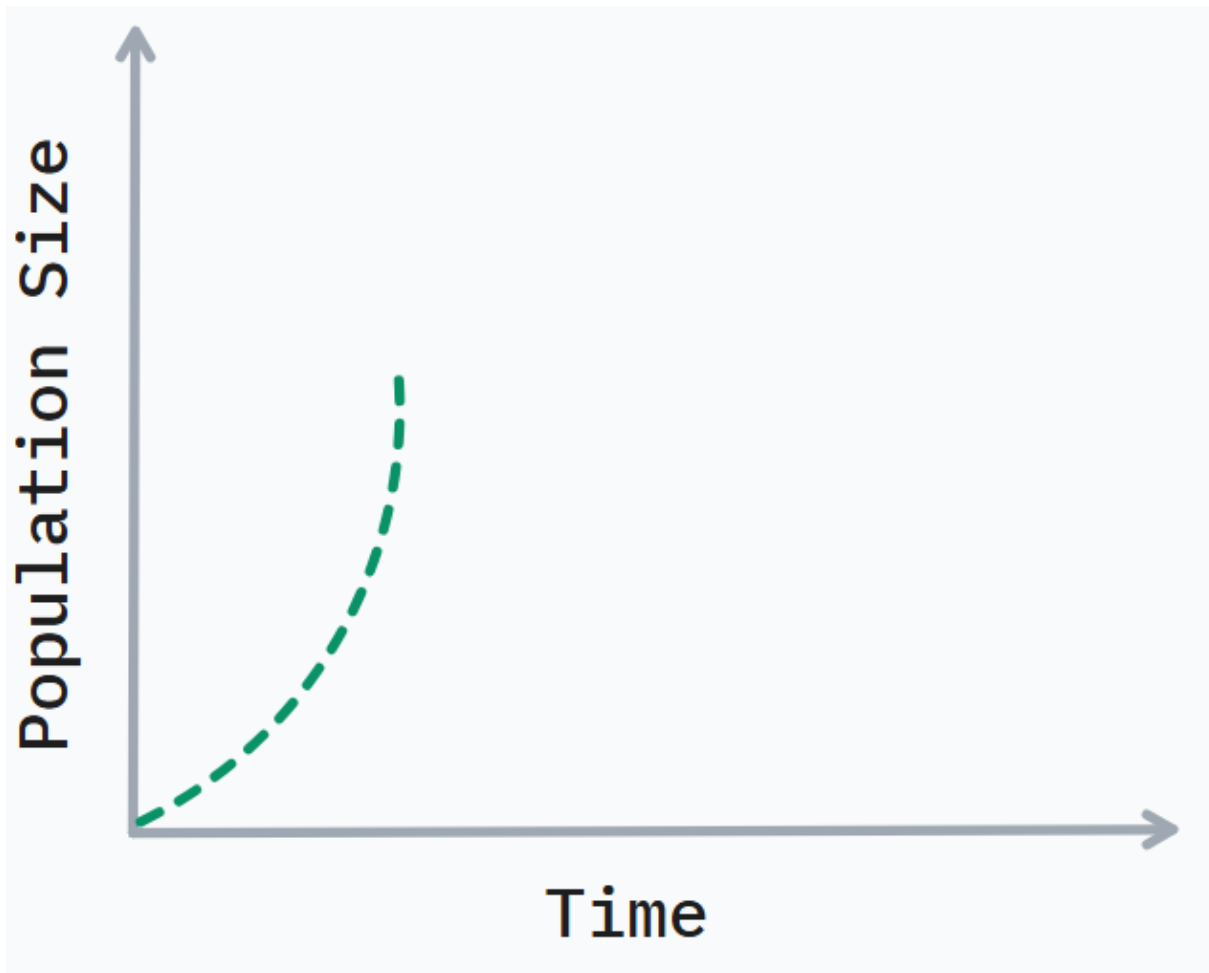
- Background
- Computing within limits
- Overview over the last decade (New research!)
- Call to action



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The growth narrative -> endless

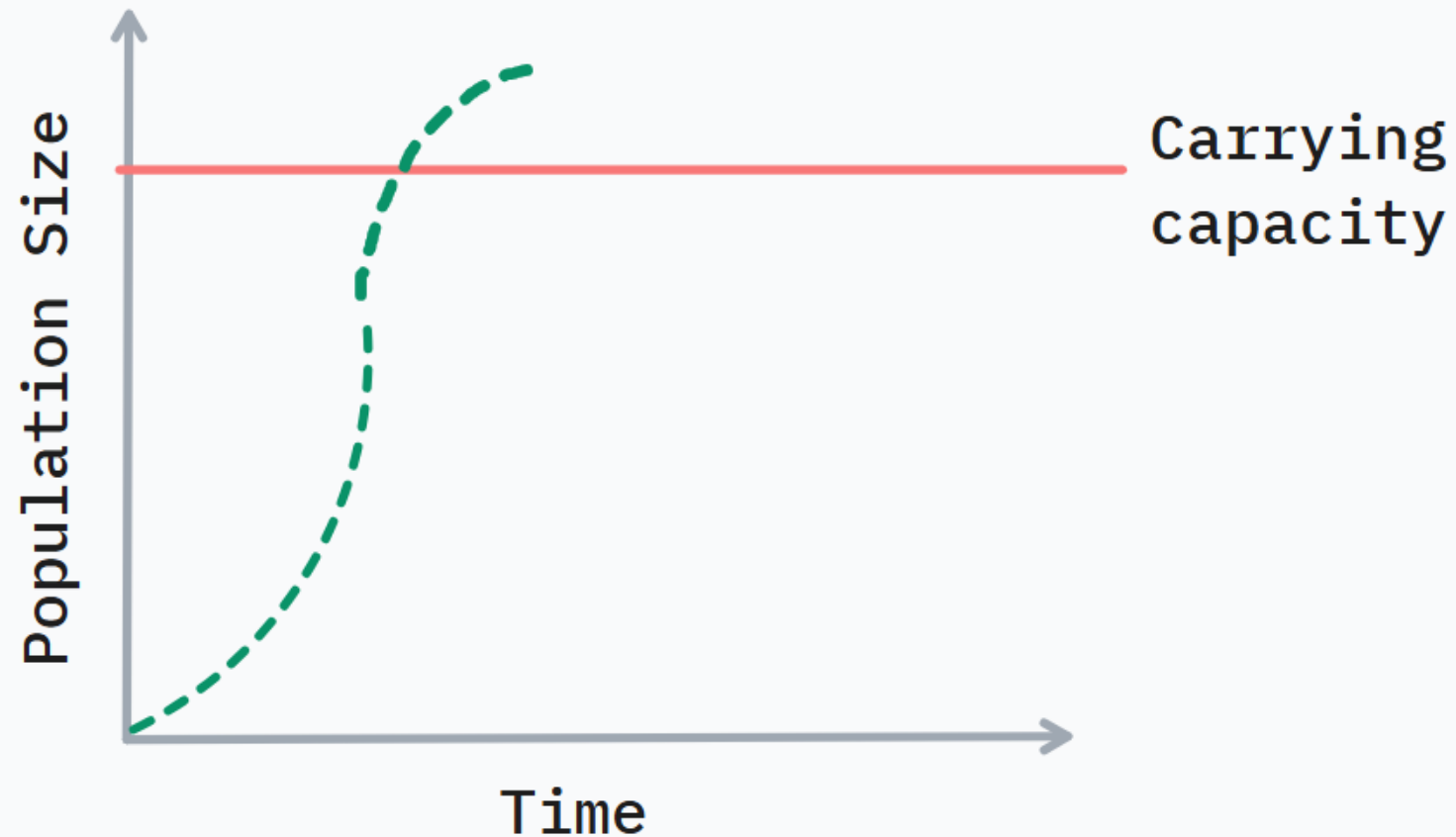




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The growth narrative meets limits

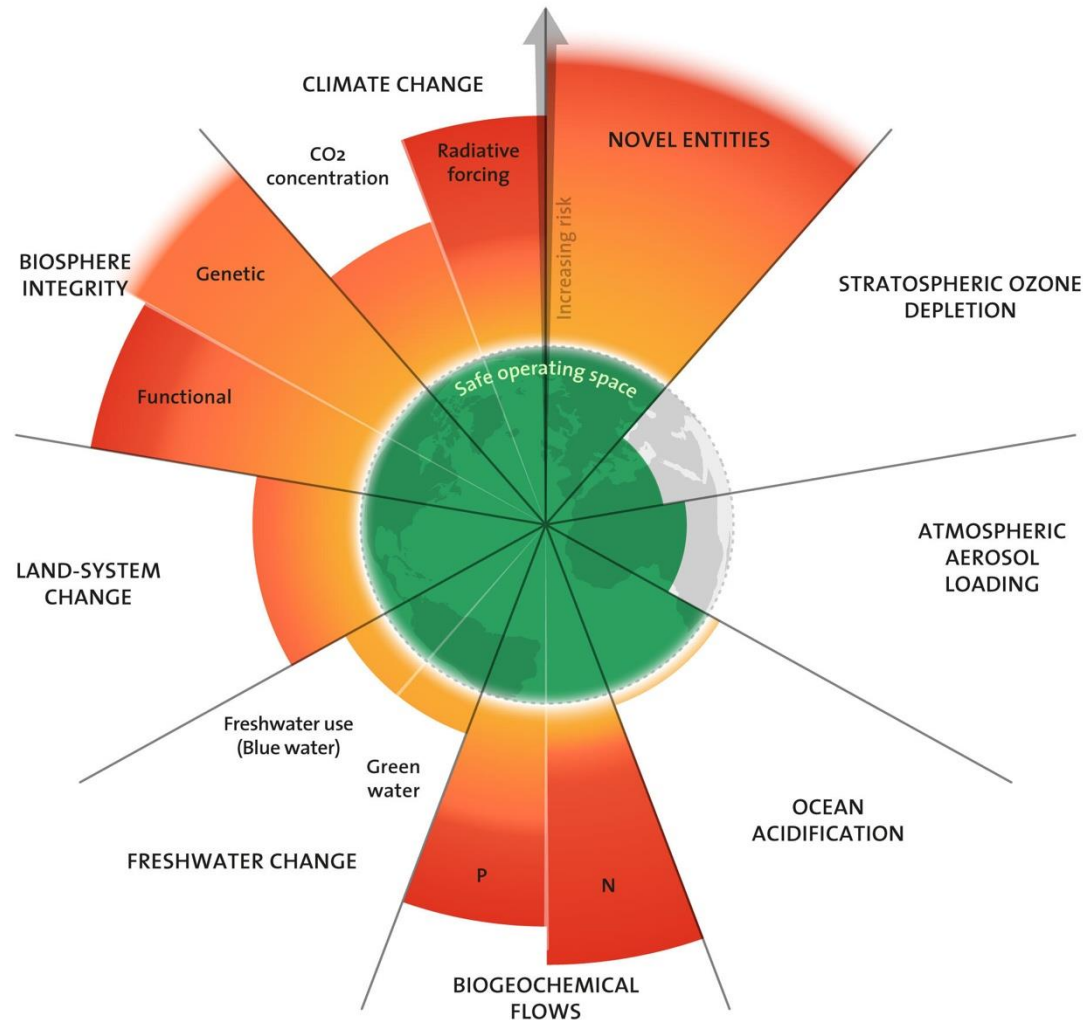




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Planetary boundaries



7 out of 9 Planetary Boundaries are breached

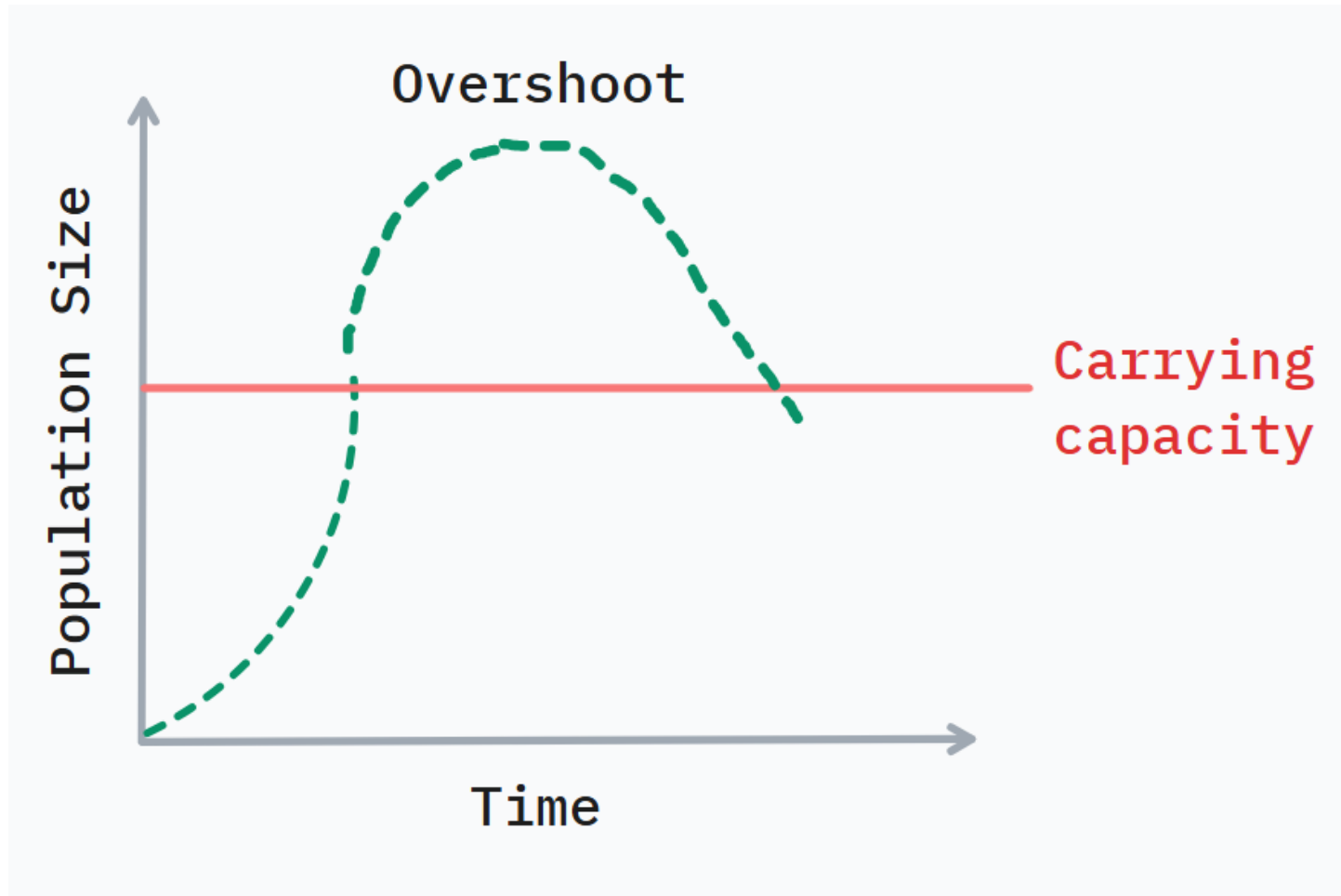
The 2025 update to the Planetary boundaries. Licensed under CC BY-NC-ND 3.0. Credit: "Azote for Stockholm Resilience Centre, based on analysis in Sakschewski and Caesar et al. 2025".



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The growth narrative -> overshoot

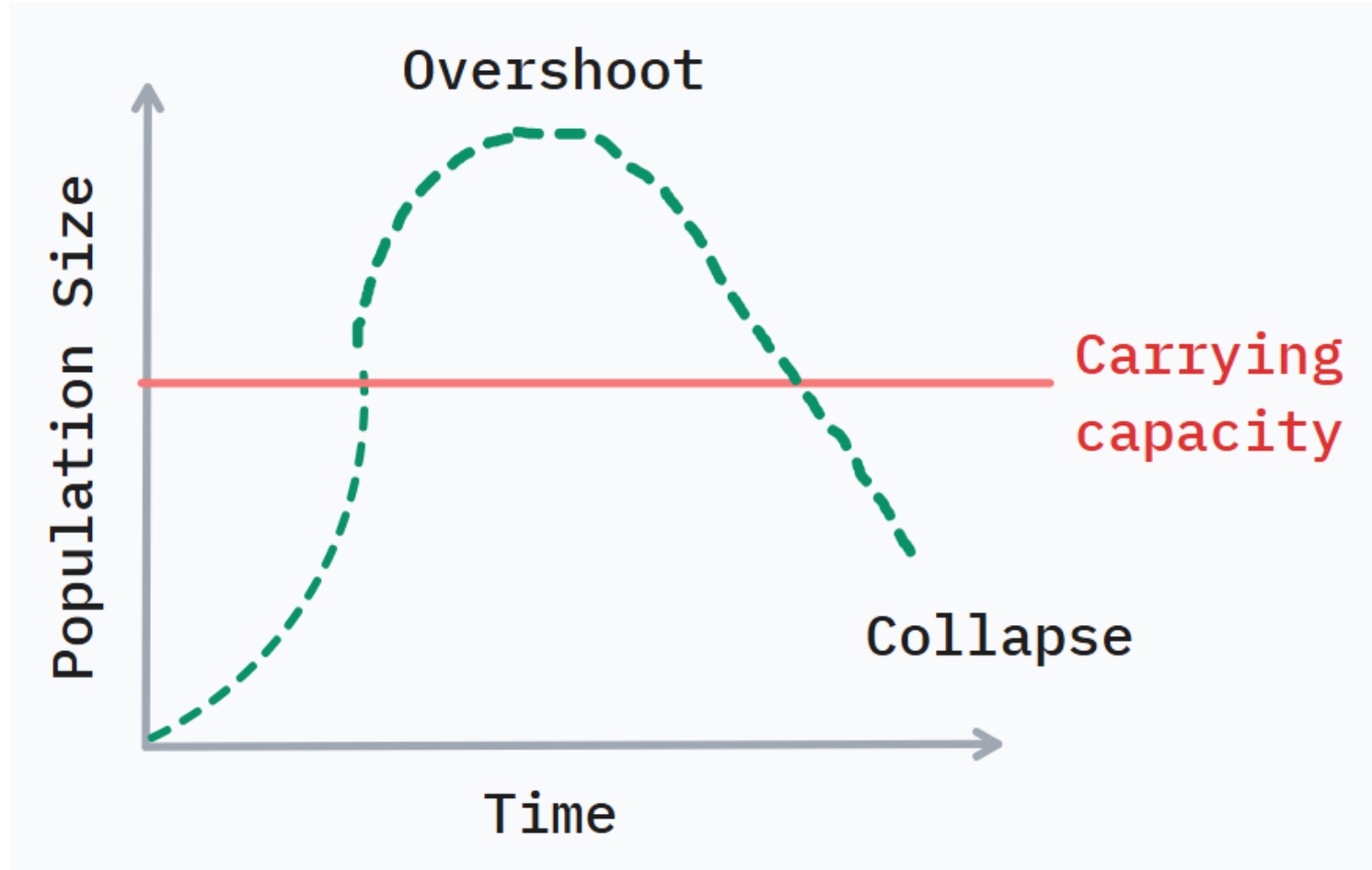




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The growth narrative -> overshoot



OVERSHOOT
The Ecological Basis of Revolutionary Change

carrying capacity: maximum permanently supportable load.

cornucopian myth: euphoric belief in limitless resources.

drawdown: stealing resources from the future.

cargoism: delusion that technology will always save us from

overshoot: growth beyond an area's carrying capacity, leading to

crash: die-off.

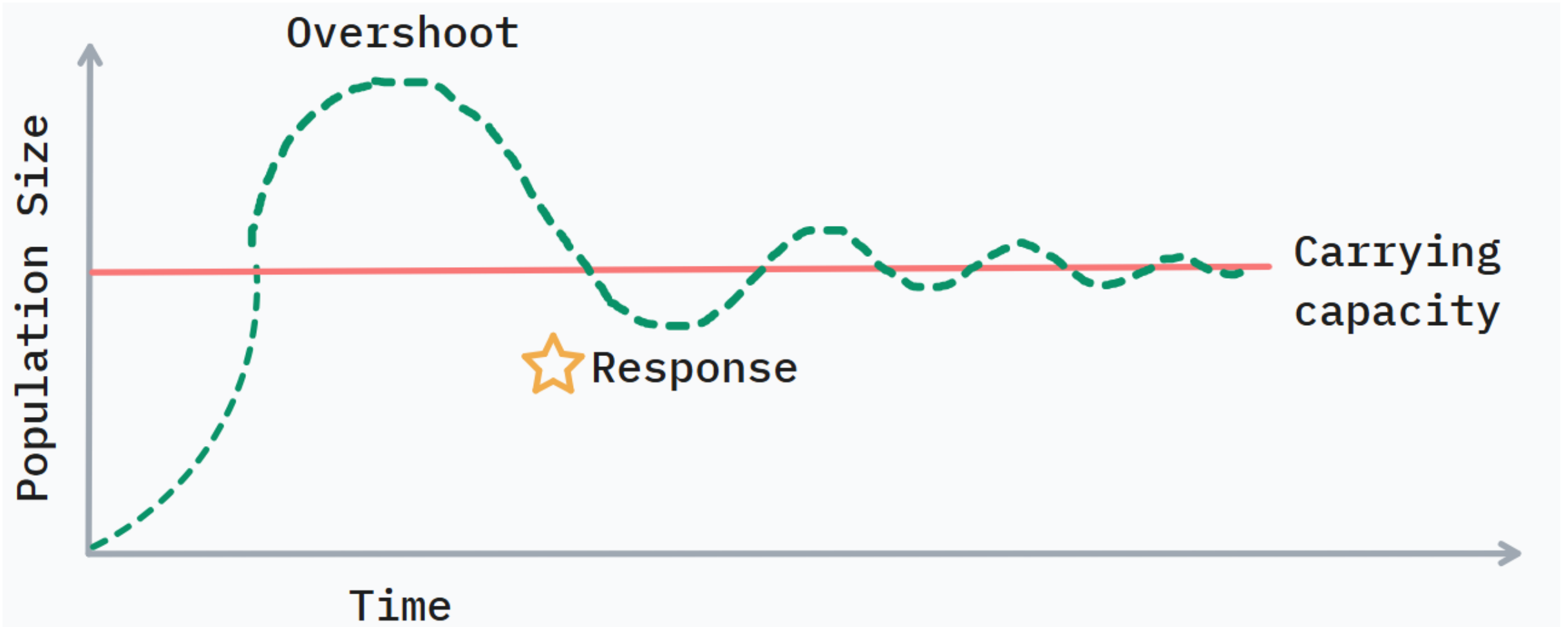
William R. Catton, Jr.
Foreword by Stewart Udall



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Staying within the limits





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Jevons paradox

More efficient use of a resource tends to **increase** the total consumption of that resource

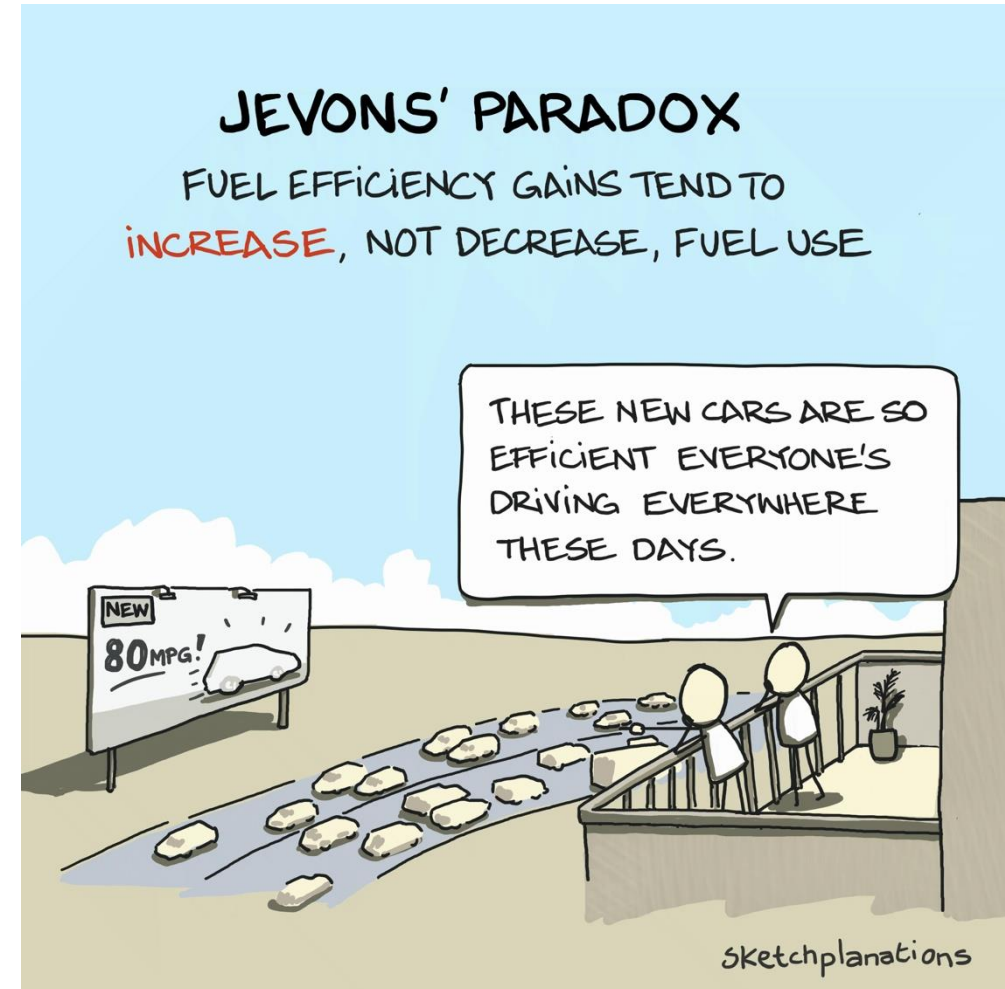


Image: Jono Hey, [Sketchplanations](https://www.sketchplanations.com/)



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What is LIMITS?



LIMITS three main principles

- Question growth
 - Consider models of scarcity
 - Reduce energy and material consumption
-
- How can **computing support long-term well-being?**



Other fields

- Influence from: HCI + ICT
- **Collapse informatics:** “the study, design, and development of sociotechnical systems in the abundant present for use in a future of scarcity.”
- **Green IT:** LIMITS research questions Green IT’s implicit assumption that we can “engineer around” the finiteness of the Earth’s resources and waste capacity



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Examples of interesting topics



Reusing

- Degrowth computing
- Avoid making old equipment obsolete
- Retrofitting of deprecated devices



HCI Design

- Including/highlighting other-than-human Participants in Design
- Deceptive AI Design patterns -> deceptive infrastructure
- Default phone settings and energy
- Protocols for digital practices in organisation



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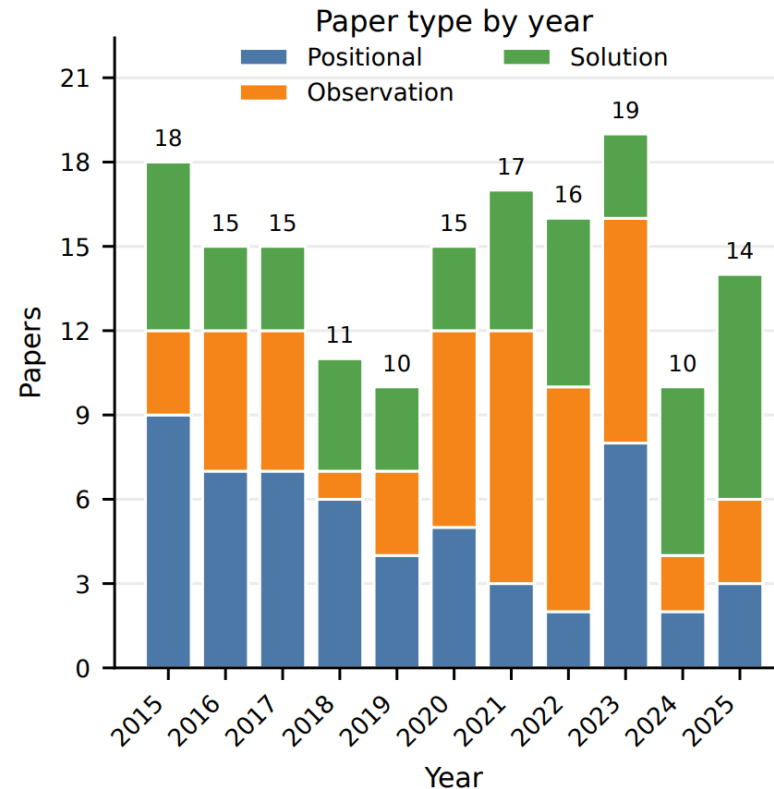
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[Submitted on 28 May 2026]

Overview over the first decade of LIMITS

Maria Emine Nylund, Erik Johannes Husom, Ophelia Prillard

- How well have the publications followed the principles defined by Nardi et al.?
- Analysed 160 publications:
 - Quantitative
 - Qualitative
- <https://arxiv.org/abs/2605.30543>

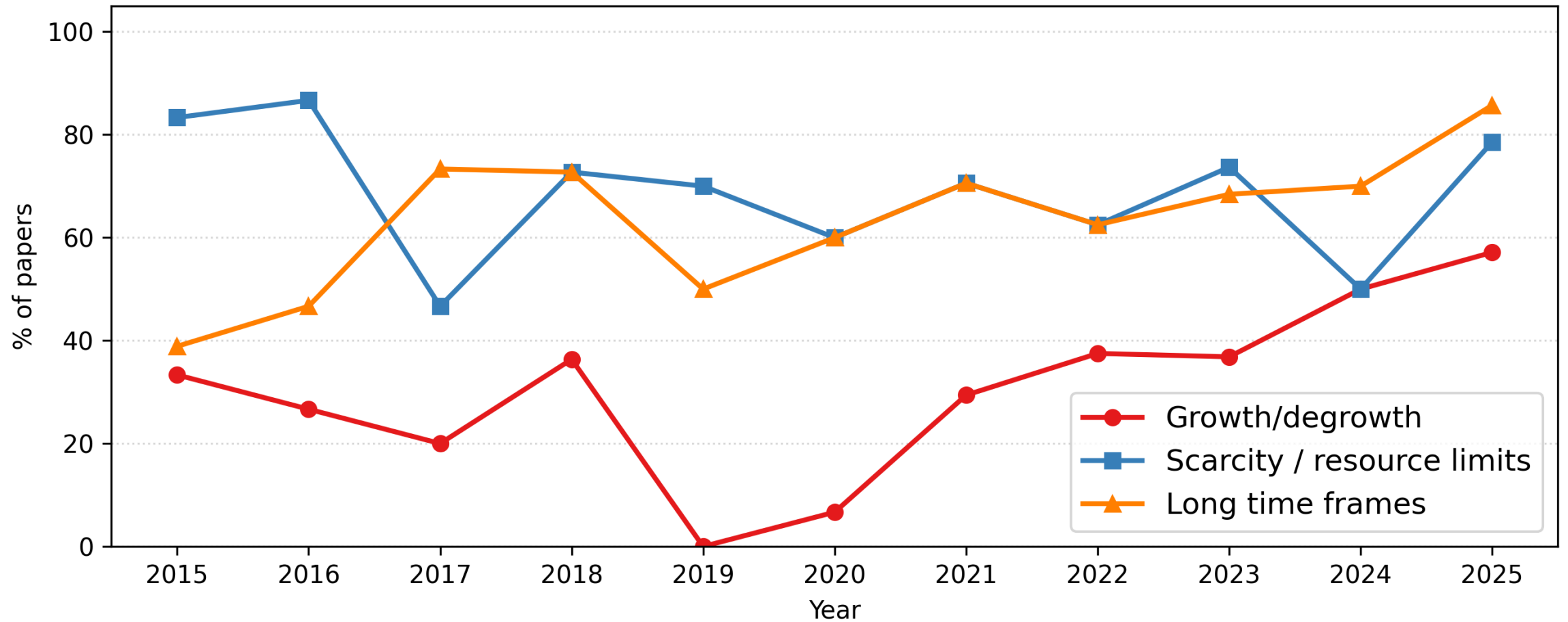




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LIMITS Core Principles Mentioned Over Time

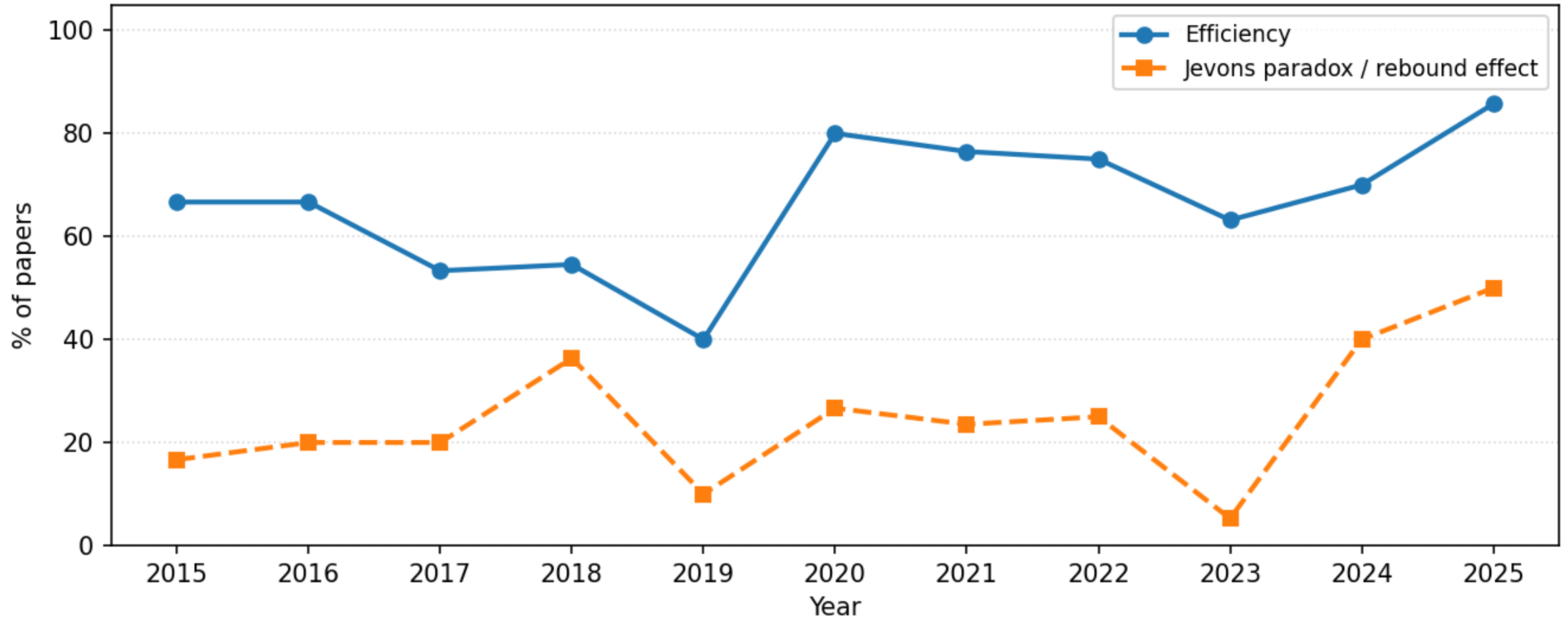




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Efficiency mentions vs Jevons / rebound awareness

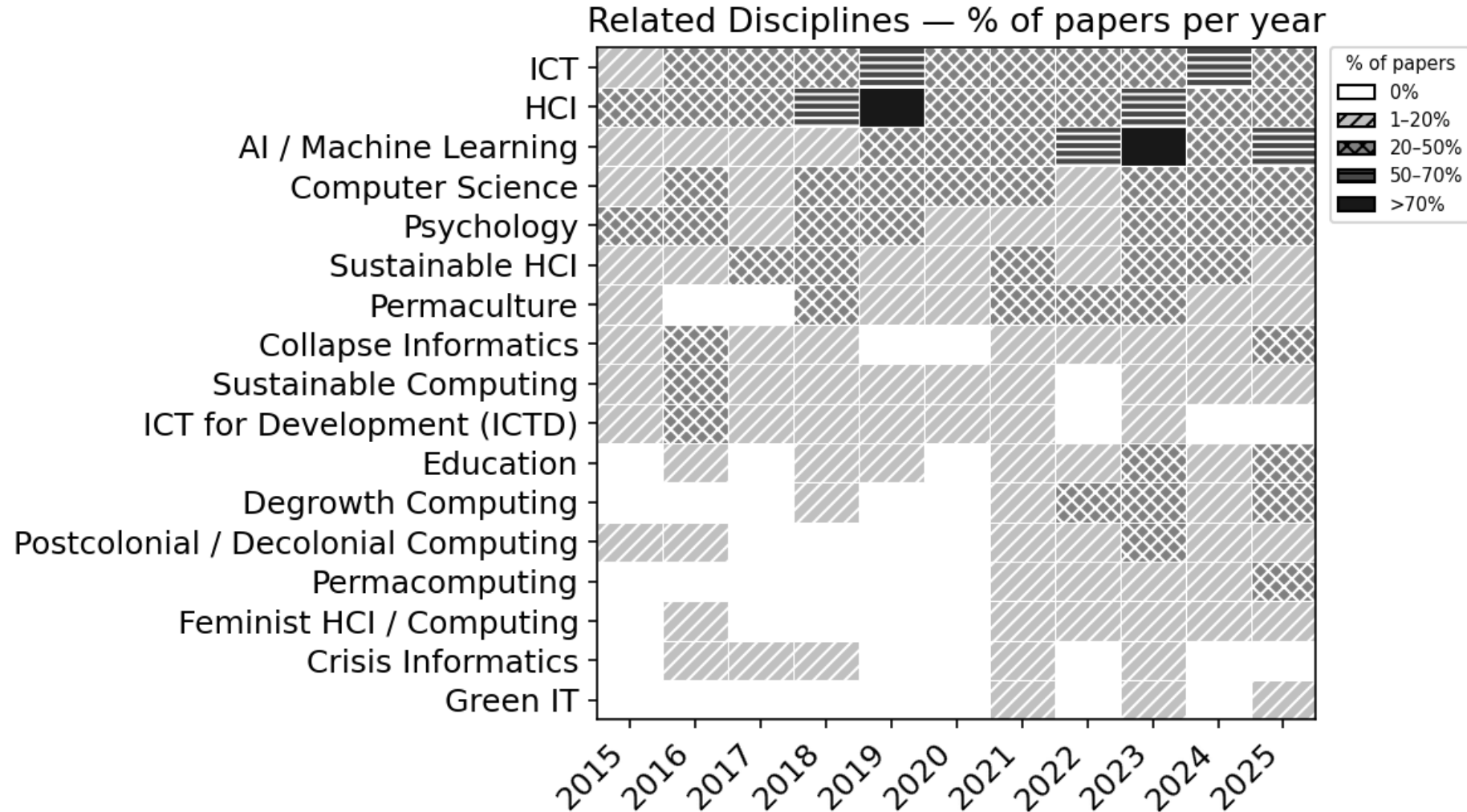




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Related disciplines



Computing **Within** Limits

Oslo Hub **23-25.6**

Sign up **here**
+ Free food

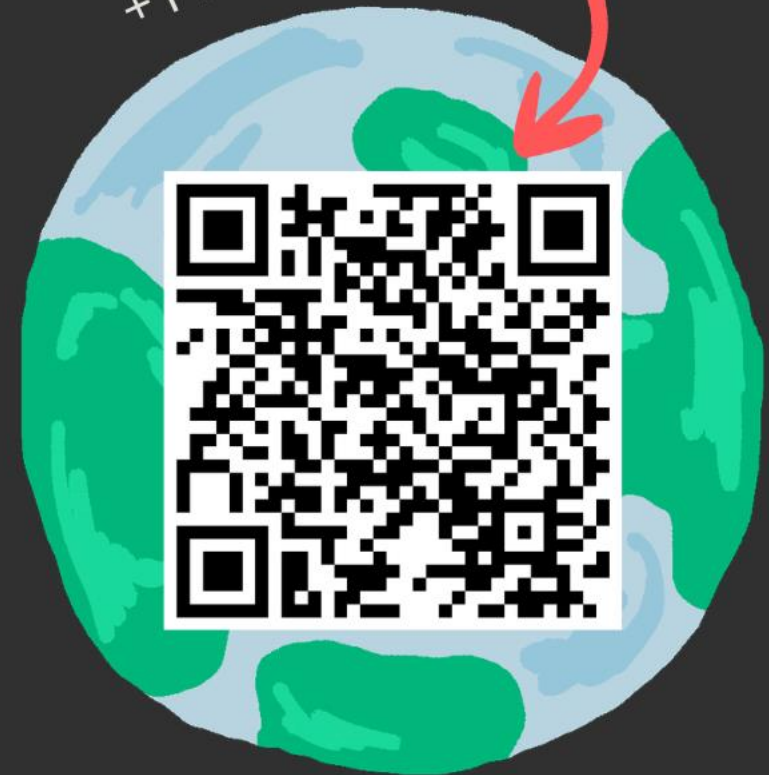


What does **resilience** mean when the challenges are planetary, not just technical? Join us for presentations, discussion, ideas and community for anyone who thinks tech should work with the planet and people, not against it. All disciplines are welcome! Join all or one day.

23 - 25th June 2026 16:30 – 20:00

Informatics Library in Ole Johan Dahls hus Gaustadalléen 23 B

www.computingwithinlimits.org/2026



Institutt for informatikk



Dataforeningen



Project opportunities

Short name	HORIZON-CL5-2027-01-D1-13
Topic	Next generation scenarios for informing climate and sustainability transition
Keywords	Post-growth, Major GHG emitters (India, Brazil, China), Social Sciences and Humanities, co-design stakeholders. Collaboration across research communities, scenarios for supporting decision-making
Type	RIA
Project size	24 mill €
# projects	6 project
Deadline	4 March 2027

- Contact us for this and more!
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75 år med teknologi for et bedre samfunn

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