With Prototypes Toward More Sustainable Tech

Prototype Fund

Prototype Fund

Info- and Networking-Event, 23 Jan 2025

Open Data .ch

Tonight's Plan

1. **Welcome and overview**
   - Florin Hasler (Opendata.ch)

2. **"Lightning talks" with Mini-Panel and Q&A**
   - Jan Bieser (BFH)
   - Joséphine von Mitschke-Collande (Mercator)

   Moderated by: Verena Kontschieder (Prototype Fund)

3. **This Prototype Fund round** (Verena Kontschieder)

4. **Closing remarks**: Alexander Suter (CMS)

5. **Apéro** and application opening celebration

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Welcome

Florin Hasler, Opendata.ch

Prototype Fund

~~Elon~~

~~Silo~~

~~Hype~~

~~Profit~~

~~Closed~~

Collaboration

Systemic

Human-Centered

Public Interest

Open

Looking back at 3 Rounds

- >160 applications
- 16 projects
- 100 people
- 8 projects received follow-up funding
- Civic Tech and Public Interest Tech

How we did so far

«The Prototype Fund provides the freedom to approach tasks more open-minded, and to take more risks than possible in a commercial environment»

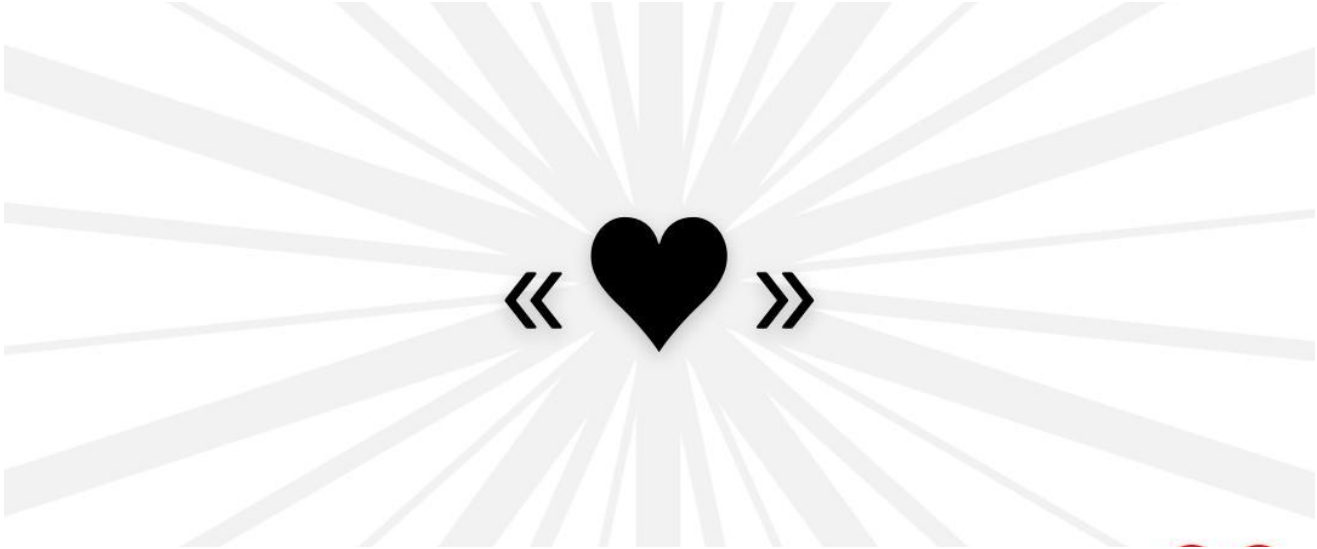
How we did so far

«The workshops were invaluable in terms of both hard and soft skills, such as communication, community building and pitching. The constant feedback during the biweekly check-ins was also very helpful.»

How we did so far

«The Prototype Fund helps especially with refining the intention behind user interactions, broadening the horizon of a project and absorbing and processing feedback.»

How we did so far



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Lightning Talks

#1: Dr. Jan Bieser - BFH, Bern University of Applied Sciences

#2: Joséphine von Mitschke-Collande - Mercator Foundation

Berner Fachhochschule
Haute école spécialisée bernoise
Bern University of Applied Sciences

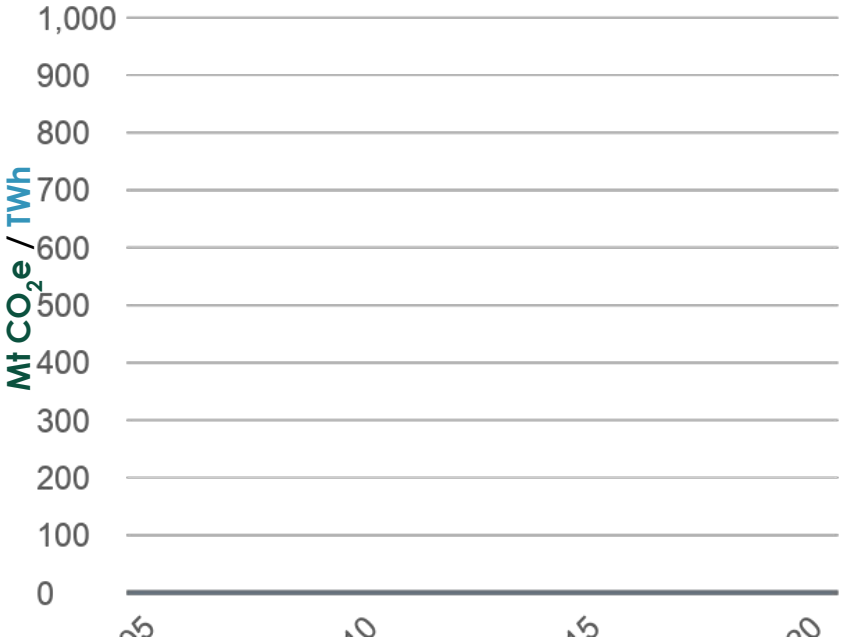
Digital Sufficiency

Jan Bieser
Professor for Digitalization & Sustainability

- Institute Public Sector Transformation, Business School, Bern University of Applied Sciences

Image: Thomas Richter on Unsplash

Despite increasing energy efficiency, greenhouse gas emissions and energy consumption in the ICT sector are increasing.



+29% **GHG emissions [Mt CO_2e]**
2007-2020

+25% **Energy use [use phase, TWh]**
2007-2020

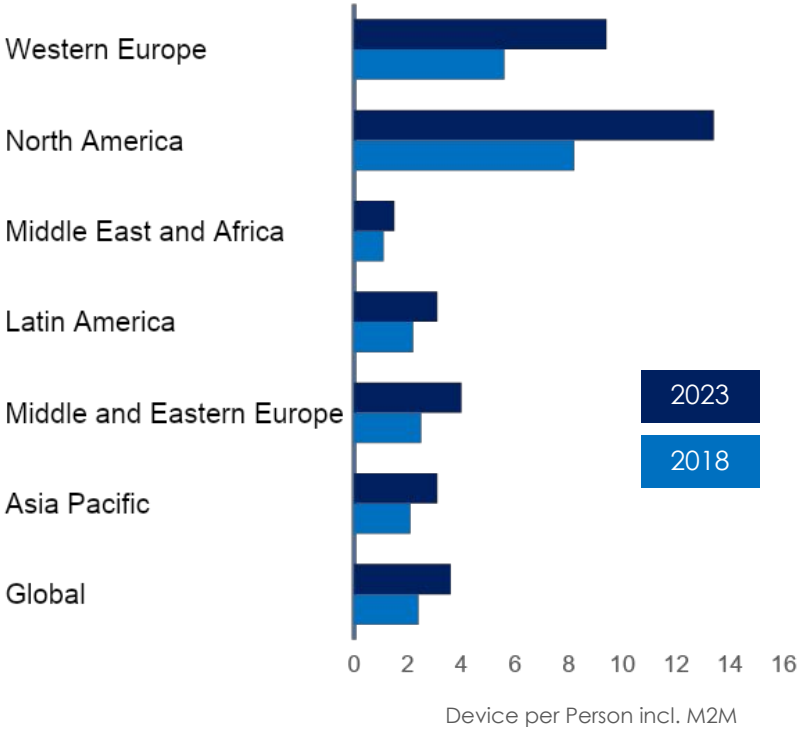
x40 **Global data traffic**
2007-2020

Source: Malmodin et al. (2024), Values rounded

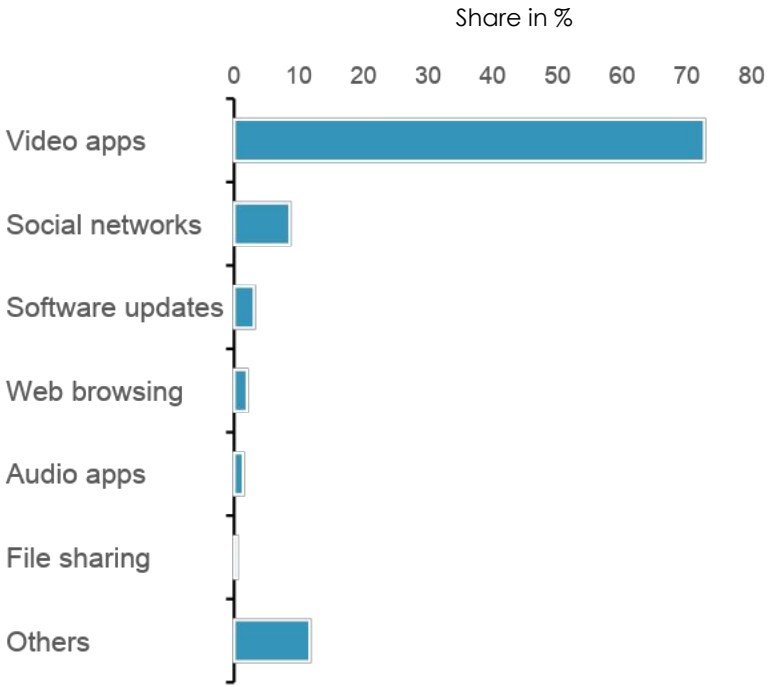
Western Europe and North America have by far the most devices per person.

Source: Cisco (2020)

Devices and connections per person



Mobile data traffic by type
January 2024



Video dominates (mobile) data traffic by far.

Source: Statista (2025)

Reasons for a decrease

Shift to more efficient end user devices
e.g. from PCs and TVs to smartphones

Increased use of renewable energies
in device production and use

Increasing device lifetime
due to slower innovation cycles and increasing cost of some devices (e.g. smartphones)

Saturation effects
because everyone has a device already

Reasons for an increase

Increasing data volumes
due to data-intensive applications such as AI or the Metaverse

More end-user devices
e.g. through the Internet of Things

«End of Moore's and Koomey's Law»
slows down increases in energy efficiency

Economic incentives of the ICT sector
to mitigate saturation effects

There are many reasons why the ICT sector's footprint will either decrease or increase in the future.

Source: Freitag et al. (2021)

> Digital sufficiency aims to reduce the *absolute* environmental impact of or with digital technology!

Source: Santarius et al. (2023) Image: Thomas Richter on Unsplash

Digital sufficiency can be promoted through at least four mechanisms.

Hardware sufficiency

Fewer, more resource-efficient and long-lasting devices

Software sufficiency

Energy-efficient and data-saving software

User sufficiency

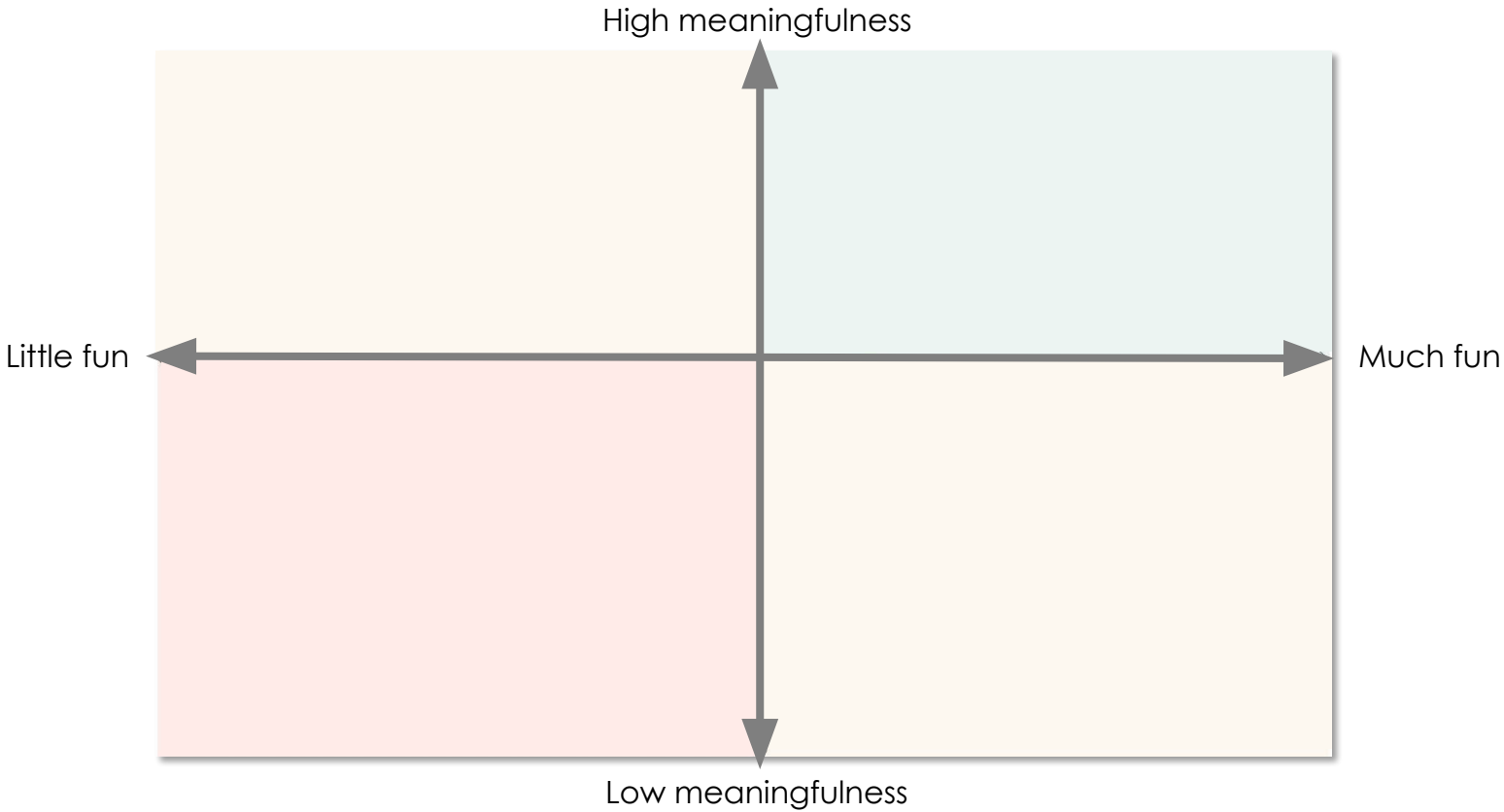
Promoting sustainable behavior through digital tools

Economic sufficiency

Promoting a sustainable economy through digitalization

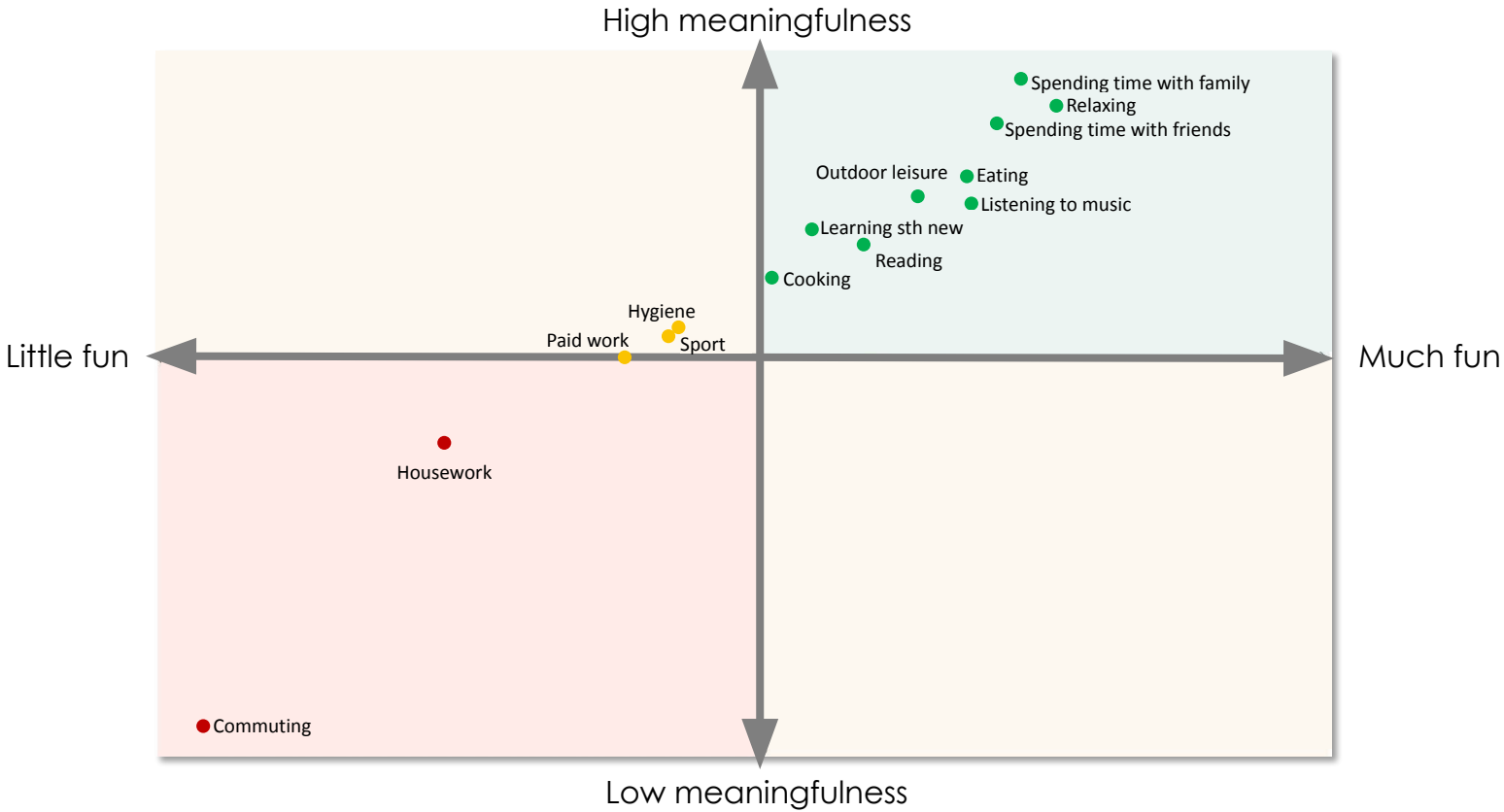
Source: Santarius et al. (2023)

Meaningfulness and fun factor of activities



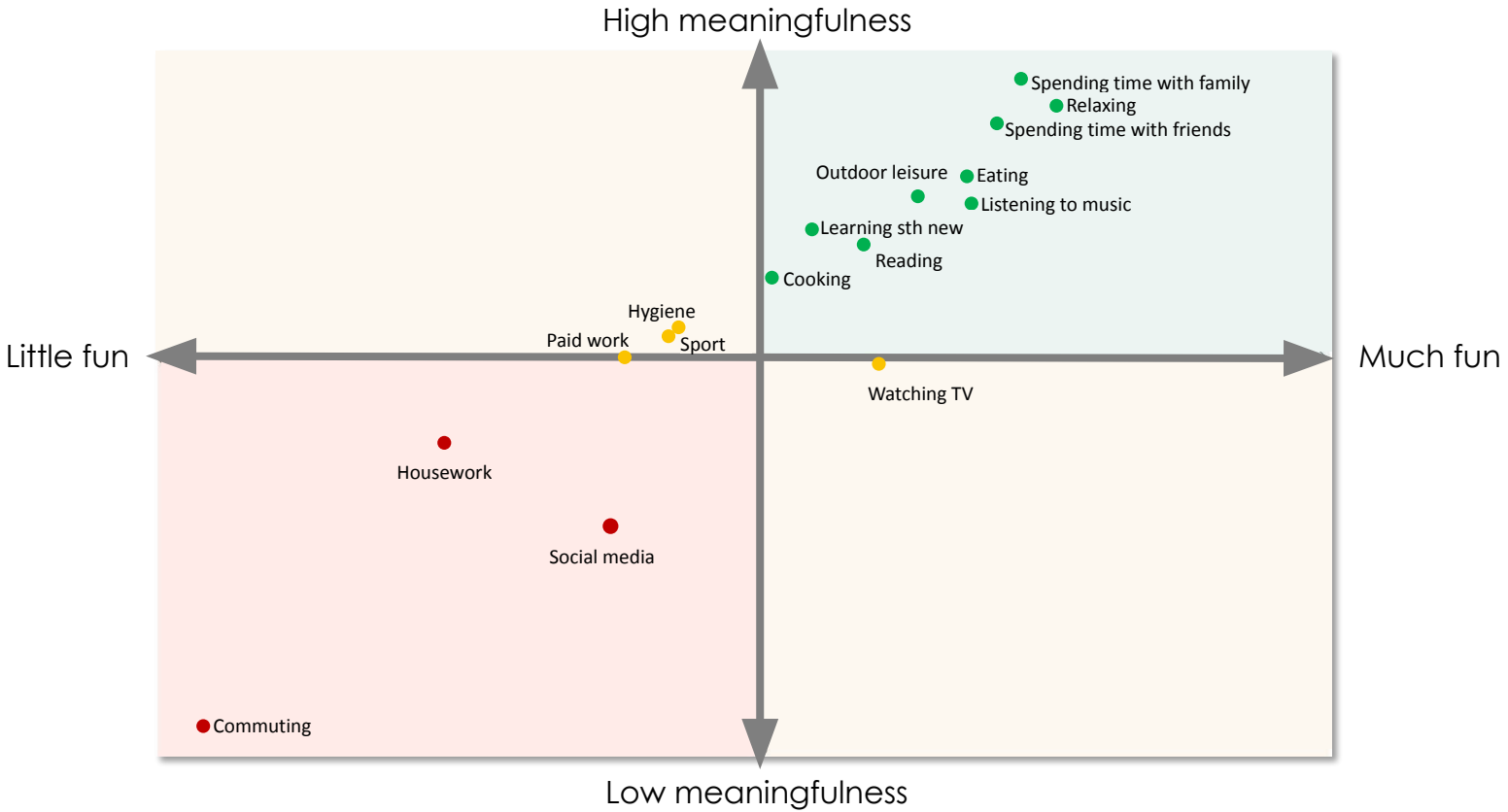
Source: Scheidegger et al. (2023)

Meaningfulness and fun factor of activities



Source: Scheidegger et al. (2023)

Social media and television lagging behind: little fun, little meaning.



Source: Scheidegger et al. (2023)

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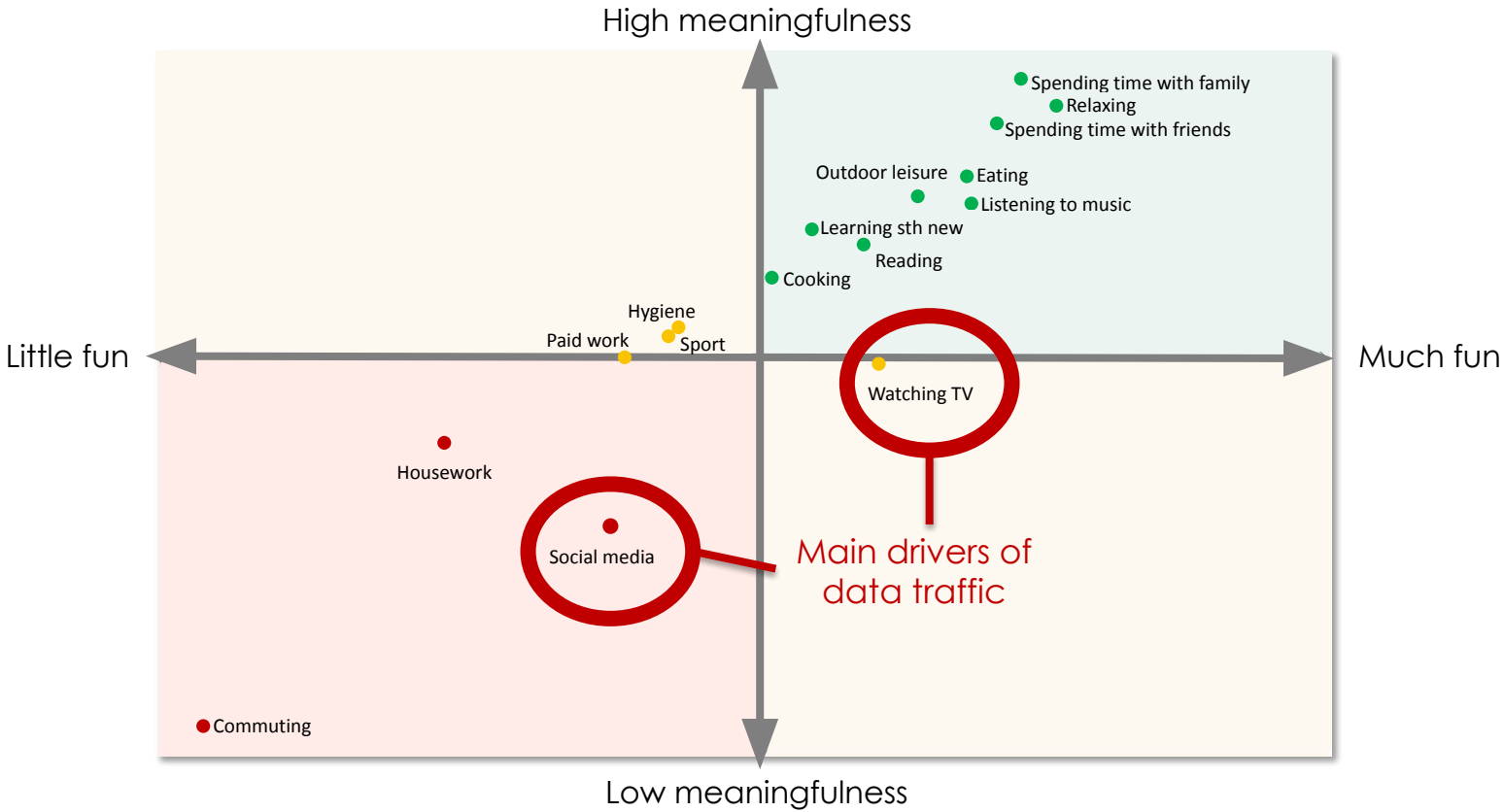

Source: Scheidegger et al. (2023)

“How can we use digital technologies to ensure a good life for all within planetary boundaries?”

Source: Santarius et al. (2023) Image: Thomas Richter on Unsplash

Thank you for your kind attention!

Image: Thomas Richter on Unsplash

Prof. Dr. Jan Bieser
Professor for Digitalization and Sustainability, Head Data and Infrastructure Group
Institute Public Sector Transformation, Business School
Bern University of Applied Sciences

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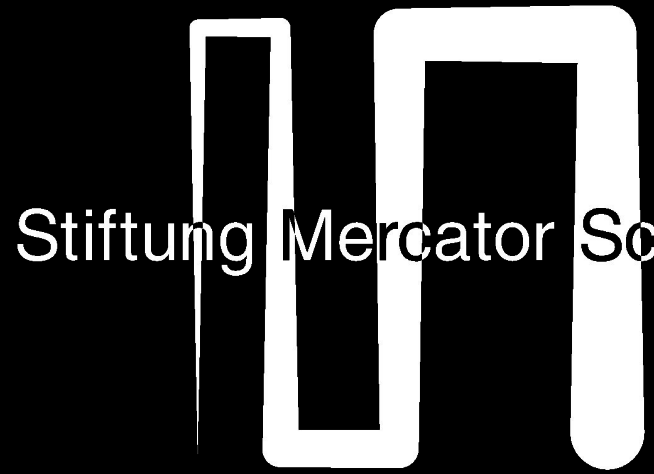
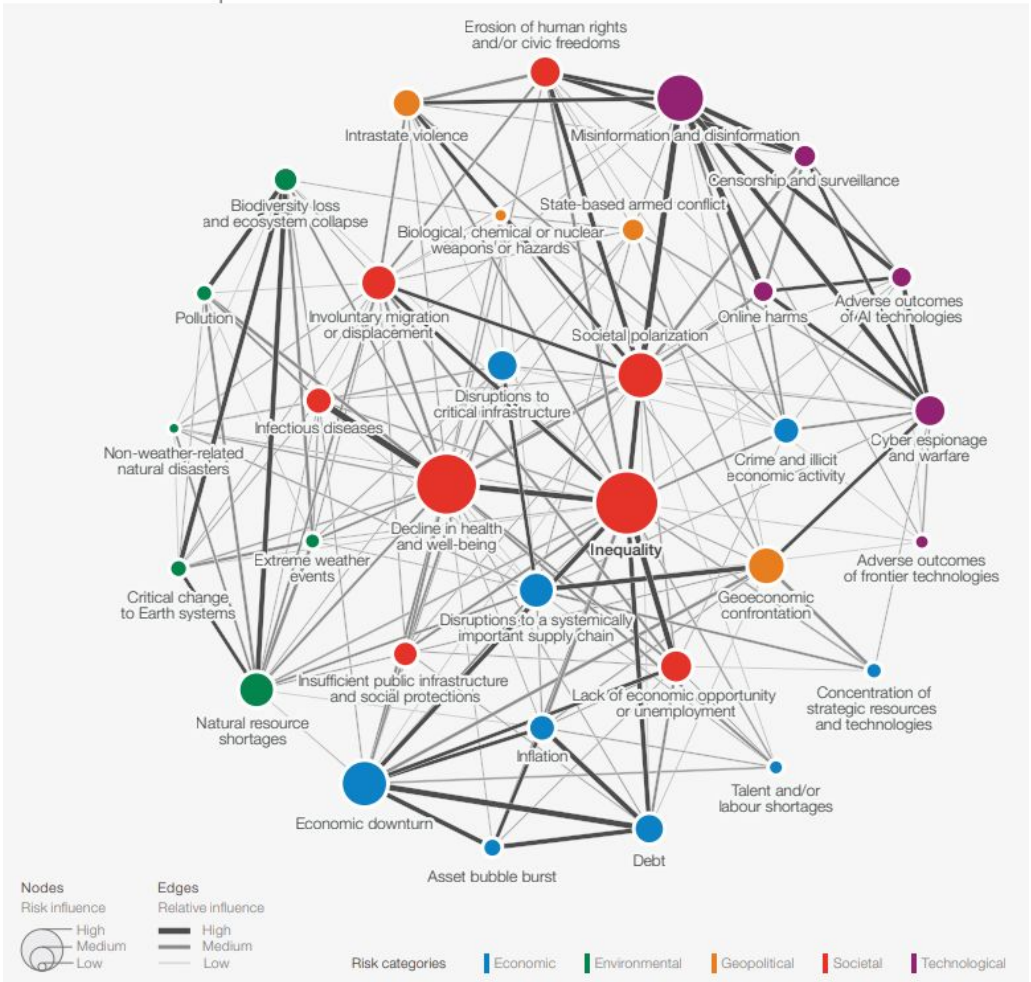

Stiftung Mercator Schweiz

Context: the «bottle»

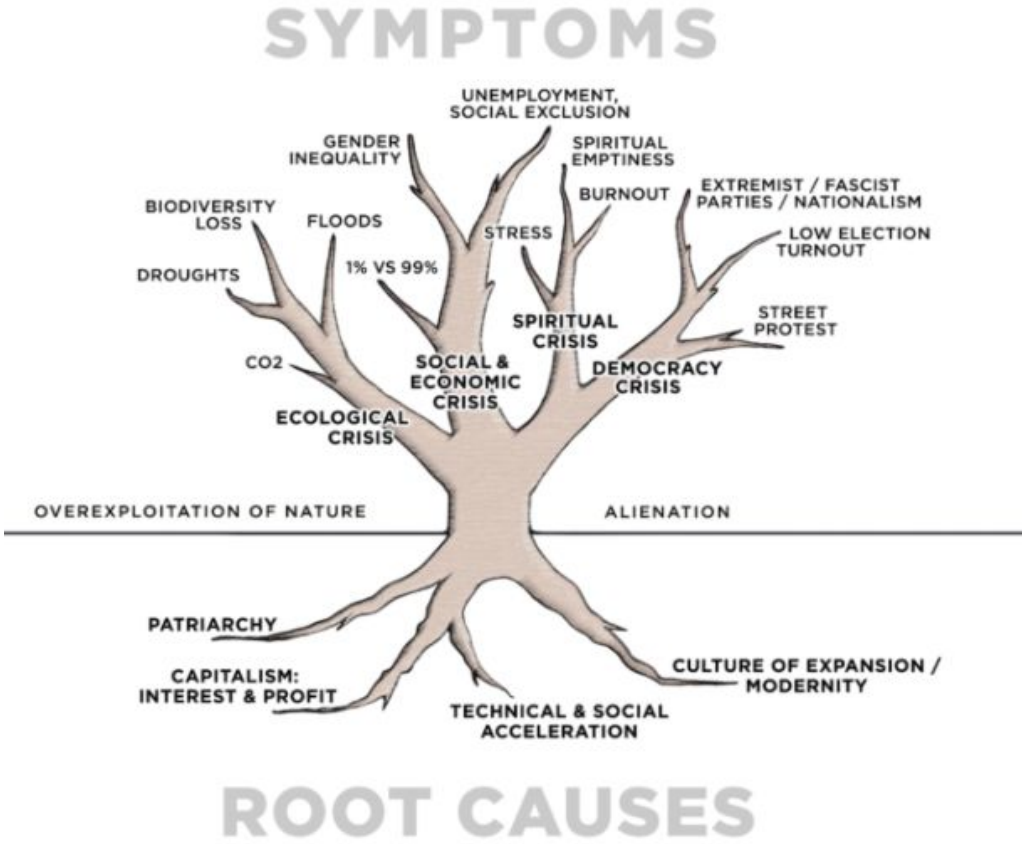
Context

FIGURE D | **Global risks landscape: An interconnections map[3]**



World Economic Forum. Risk Map, 2025

Context



Guerilla Foundation, Why we do what we do, 2011

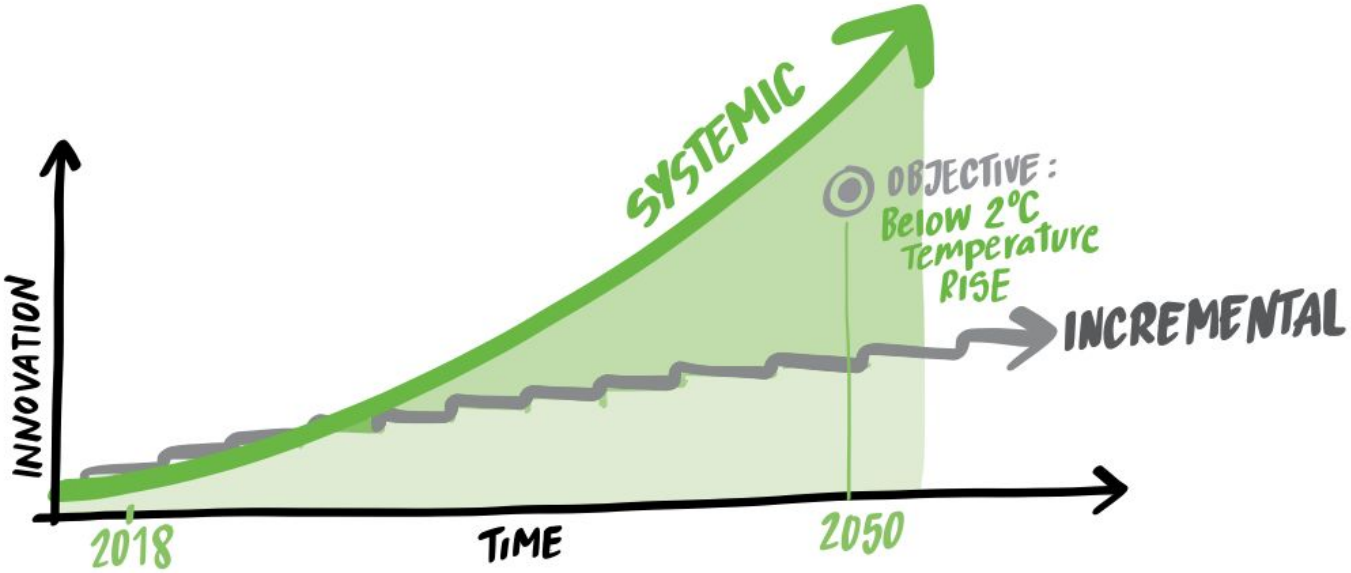
Context: the «bottle»

Context


THE BOTTLE SHOP
TBS
EST. 2017
OCEAN BOTTLE
CLEAN IN DESIGN UND PRODUKTION
Das einzigartige Design in Kombination mit dem grössten Impact, den eine Flasche je hatte. Das ist die «Ocean Bottle». Eine Flasche, die Gutes tut und die der Welt und vor allem unseren Weltmeeren hilft, aufzuatmen. Der Kauf jeder Flasche ermöglicht es, unglaubliche 11,4 Kilogramm Plastik an Meereszuflüssen und in Küstenregionen zu entfernen, es die Ozeane gar nicht erst erreicht. Richtig gehört: 11,4 Kilogramm! Dies entspricht 1000 Einweg-Plastikflaschen. Doch dabei bleibt es nicht. Da diese Flaschen auch von jemandem gesammelt werden müssen, werden neue Jobs in vielen der ärmsten Regionen der Welt geschaffen.
Jetzt bestellen unter thebottleshop.ch


INTERVIEW
EINE NACHHALTIGE ZUKUNFT MIT BMW
INTERVIEW MARTINA MÜLLNER-SEYBOLD
Die BMW GROUP *liegt im Branchenvergleich bei den CO_2-Emissionen je produziertem Fahrzeug weit unter den Werten anderer Hersteller.* PAUL DE COURTOIS, *President & CEO der BMW (Schweiz) AG, im Interview zum Thema Nachhaltigkeit.*
NACHHALTIGKEIT BEI DER BMW GROUP
Nachhaltigkeit ist bei BMW traditionell ein wichtiges Thema, das man früher als andere in den Unternehmenszielen verankerte. Daher liegt das Unternehmen im Branchenvergleich bei den CO_2-Emissionen je produziertem Fahrzeug weit unter den Werten anderer Hersteller. Mit dem Erstarken neuer Antriebskonzepte wie dem E-Antrieb verändert sich auch die Herangehensweise, wie man Fahrzeuge nachhaltig produziert. Eine Allianz aus Zulieferern und Marke macht es möglich, dass die Nachhaltigkeitsziele über die gesamte Wertschöpfungskette ernst genommen werden. Daran ändert auch die Corona-Krise nichts.
EINE NEUE ÄRA DER ELEKTROMOBILITÄT
Visionär und revolutionär: Die Marke BMW i präsentiert mit dem iX3 das erste rein elektrisch angetriebene Grossserienmodell der BMW Group.
BMW iX3
NACHHALTIG ELEKTRISIEREND
Umweltschonend, hocheffizient und mitreissend agil. Die elektrifizierten Fahrzeuge von BMW und MINI setzen neue Innovationsstandards.
Die BMW Group hat Elektromobilität zur obersten Priorität erklärt. In welchen konkreten Schritten erfolgt der Ausbau?
PAUL DE COURTOIS: Das Fundament der Elektromobilität bei der BMW Group haben wir bereits im Jahr 2013 gelegt mit dem vollelektrischen BMW i3. Unser «project i» war der Beginn von Phase I unserer Transformation zur nachhaltigen Mobilität. Der i3 hat sich weltweit über 200 000 Mal verkauft, davon rund 6000 Mal in der Schweiz.
Nicht nur in Sachen Antriebstechnik setzt BMW auf grüne Massnahmen, …
… sondern auch in allen anderen Bereichen entlang der Wertschöpfungskette. Seit jeher sind langfristiges Denken und verantwortungsvolles Handeln die Grundlage des wirtschaftlichen Erfolgs der BMW Group. Das Unternehmen hat ökologische und soziale Nachhaltigkeit, umfassende Produktverantwortung sowie ein klares Bekenntnis zur Schonung von Ressourcen fest in seiner Strategie verankert.
«ÖKOLOGISCHE UND SOZIALE NACHHALTIGKEIT SIND FEST IN UNSERER STRATEGIE VERANKERT.»
PAUL DE COURTOIS
«Freude am Fahren» ist der Leitspruch von BMW. Wird diese Freude in Zukunft fest verknüpft sein mit dem Gedanken, dass man beim Fahren auch die Umwelt schonen will?
«Freude am Fahren» war schon immer eine der wichtigsten Merkmale eines BMW. Egal, ob konventioneller Verbrennungsmotor, Hybrid- oder Elektroantrieb – die Freude am Fahren können Sie mit allen unseren Modellen erleben.
Was verbindet Sie und die BMW Group mit einem schweizerischen Familienunternehmen wie PKZ?
Sowohl PKZ als auch die BMW Group Switzerland sind kleine respektive mittlere Unternehmen, die nah an ihren Mitarbeitenden sind und den Kunden ins Zentrum ihrer Aufmerksamkeit gerückt haben. Zusätzlich verbindet uns das Commitment zur Nachhaltigkeit, das jeden unserer Schritte begleitet.
Frühling 2021 / INSIDE / 109

We need: Impact !



Climate-KIC, Transformation, In Time, 2019

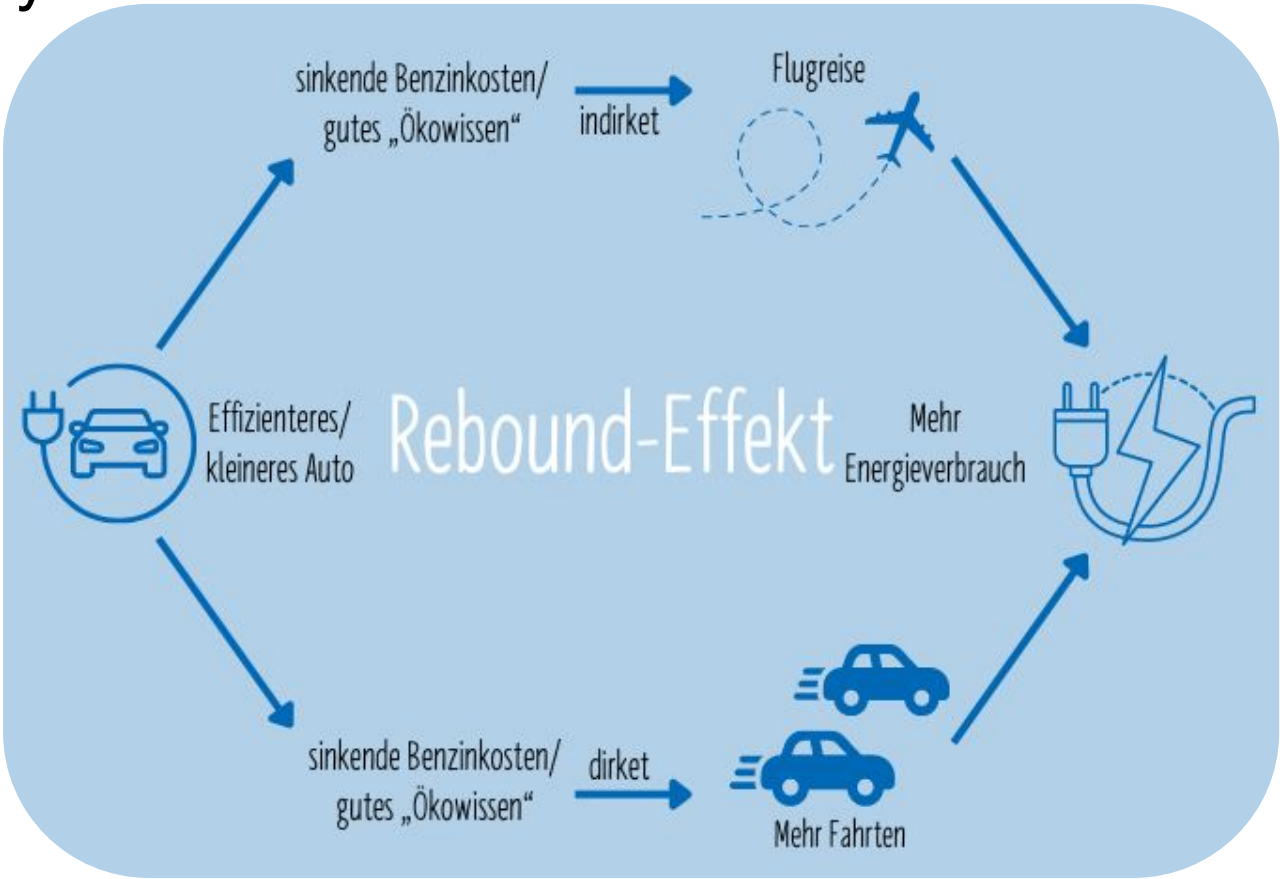
Sufficiency: 3rd pillar of Sustainability

Efficiency:
Improving the ratio of cost to generated benefit:
Developing building designs that reduce the use of materials and resources.

Consistency:
Achieving the same result in a different way and at less cost:
Long-established building materials are replaced by renewable or recyclable materials.

Sufficiency:
Achieving the same result with fewer resources:
Fundamental change of thinking leading to more limitations and reduced expectations; only build what is absolutely necessary.

Sufficiency: Why?



Poverty of Imagination?

$$1 + 1 = 3$$

Sufficiency&Innovation **Creativity**

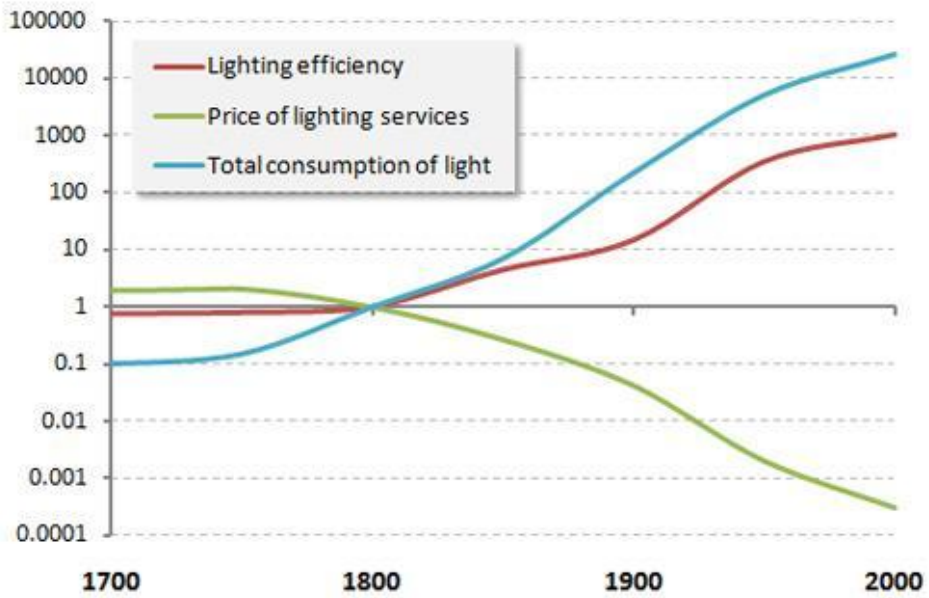
Vision

Stiftung Mercator Schweiz
Gartenstrasse 33
Postfach, CH– 8027 Zürich

stiftung-mercator.ch
+41 44 206 55 80
info@stiftung-mercator.ch

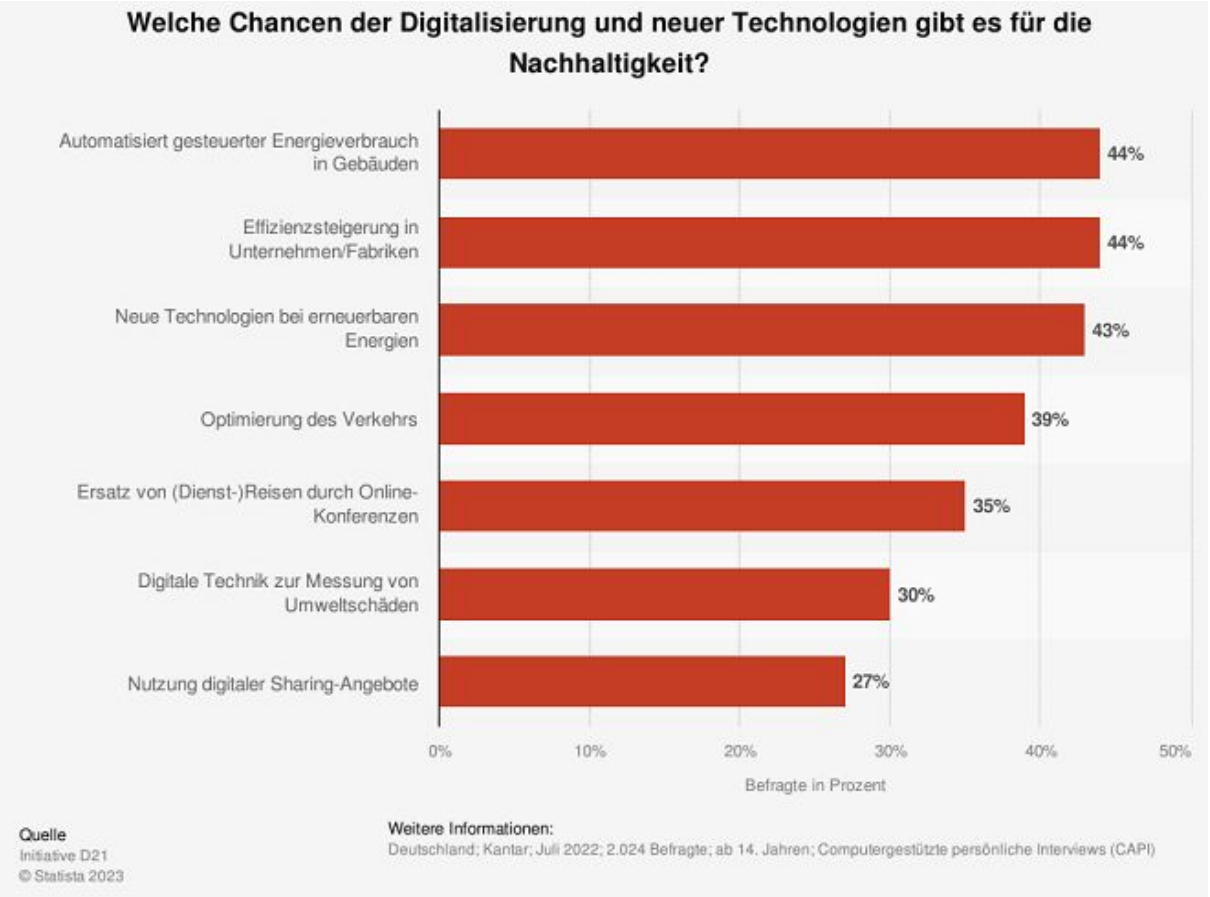
Zürich,
23rd January 2025

Der „Rebound Effekt»



https://i0.wp.com/blogs.shell.com/wp-content/uploads/2010/09/lighting-efficiency.jpg1

«Hard Data» Chancen



Context

Dialogue
Q&A

Prototype Fund

Jan Bieser (BFH, Bern University of Applied Sciences)
Joséphine von Mitschke-Collande (Mercator Foundation)

Hosted by: Verena Kontschieder (Prototype Fund)

*"Despite its **relatively small** [own emphasis] global electricity demand footprint, AI-related electricity consumption is projected to grow by 50% annually through 2030."*

OR

Data centers use comparatively very little electricity, but **buildings or production are the drivers of consumption** (p.5)

Source: https://reports.weforum.org/docs/WEF_Artificial_Intelligences_Energy_Paradox_2025.pdf

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This Round's Essence

Verena Kontschieder, Prototype Fund

Photo credit: PeopleImages, Unsplash

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Digital technologies can increase efficiency and productivity but are consuming ever more energy and resources.

Digitalisierung verbrennt unsere Lebensgrundlage.

Photo credit: Chiara Guercio, Unsplash

Data centers use more eletricity than entire countries

Domestic eletricity consumption of selected countries vs. data centers in 2020 in TWh

Source: Enerdata, IEA

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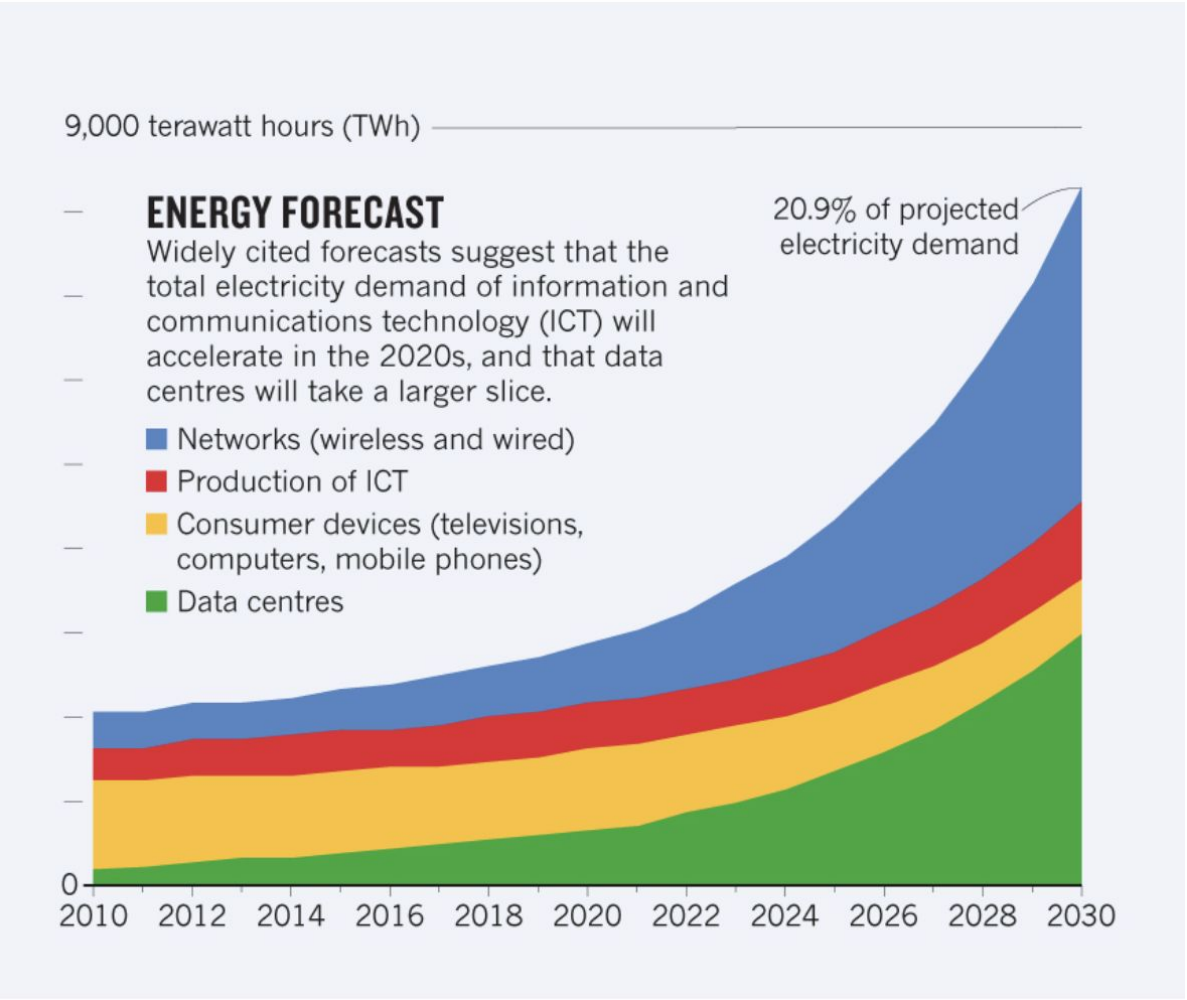
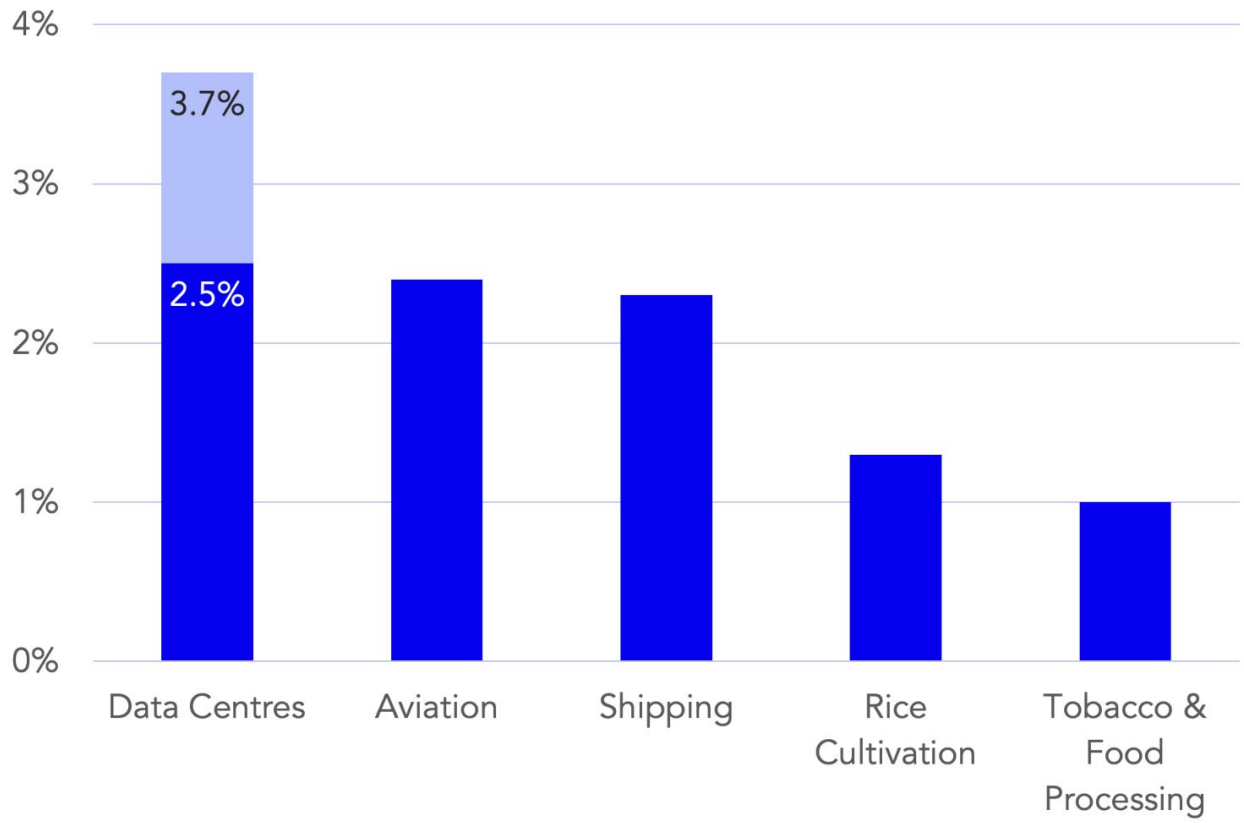


Source: Nature, https://www.nature.com/articles/d41586-018-06610-y

Share of global CO_2 emission generated by sector/category



Source: Climatiq Analysis, The Shift Project, OurWorldinData

climatiq

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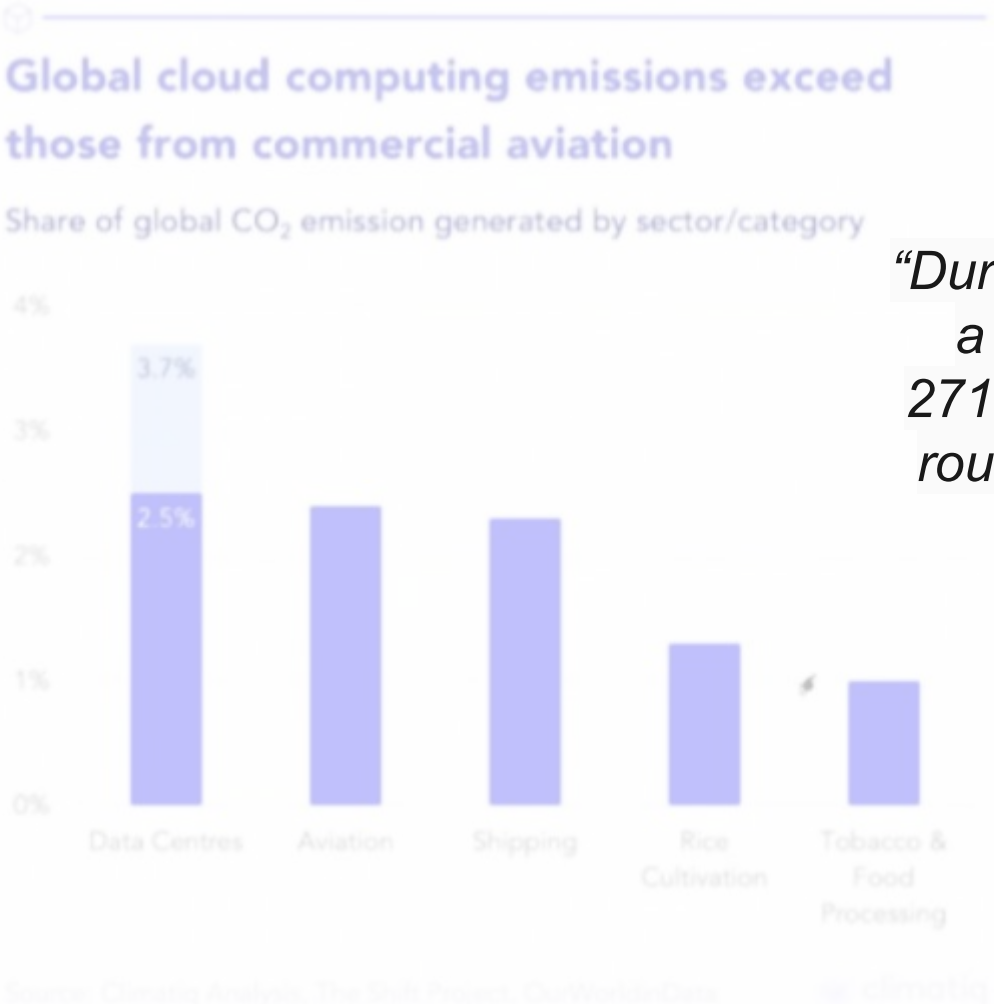

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*"During **a single training run of PaLM** at a Google data center in Oklahoma, [...] 271.43 tons of CO2 were emitted. This is roughly **equivalent to the emissions of a fully occupied plane on 1.5 transcontinental flights across the United States.** [...]."*

Source: Algorithmwatch.ch, 2024

*«"Information and communication technology (ICT) is an important enabler for a low-carbon economy in Switzerland.» **

* Hilty, Lorenz; Bieser, Jan (2017). Opportunities and Risks of Digitalization for Climate Protection in Switzerland. Zurich: University of Zurich. https://doi.org/10.5167/uzh-141128

*Digital technologies to enhance efficiency: "Achieving satisfaction of needs ('enough') instead of continuous increase ('more')."**

*Digitalization for Sustainability (D4S), 2022: Digital Reset. Redirecting Technologies for the Deep Sustainability Transformation. Berlin: TU Berlin.
http://dx.doi.org/10.14279/depositonce-16187

How can we use digital technologies to enable a good life within planetary boundaries?

Photo credit: RichVintage, Unsplash

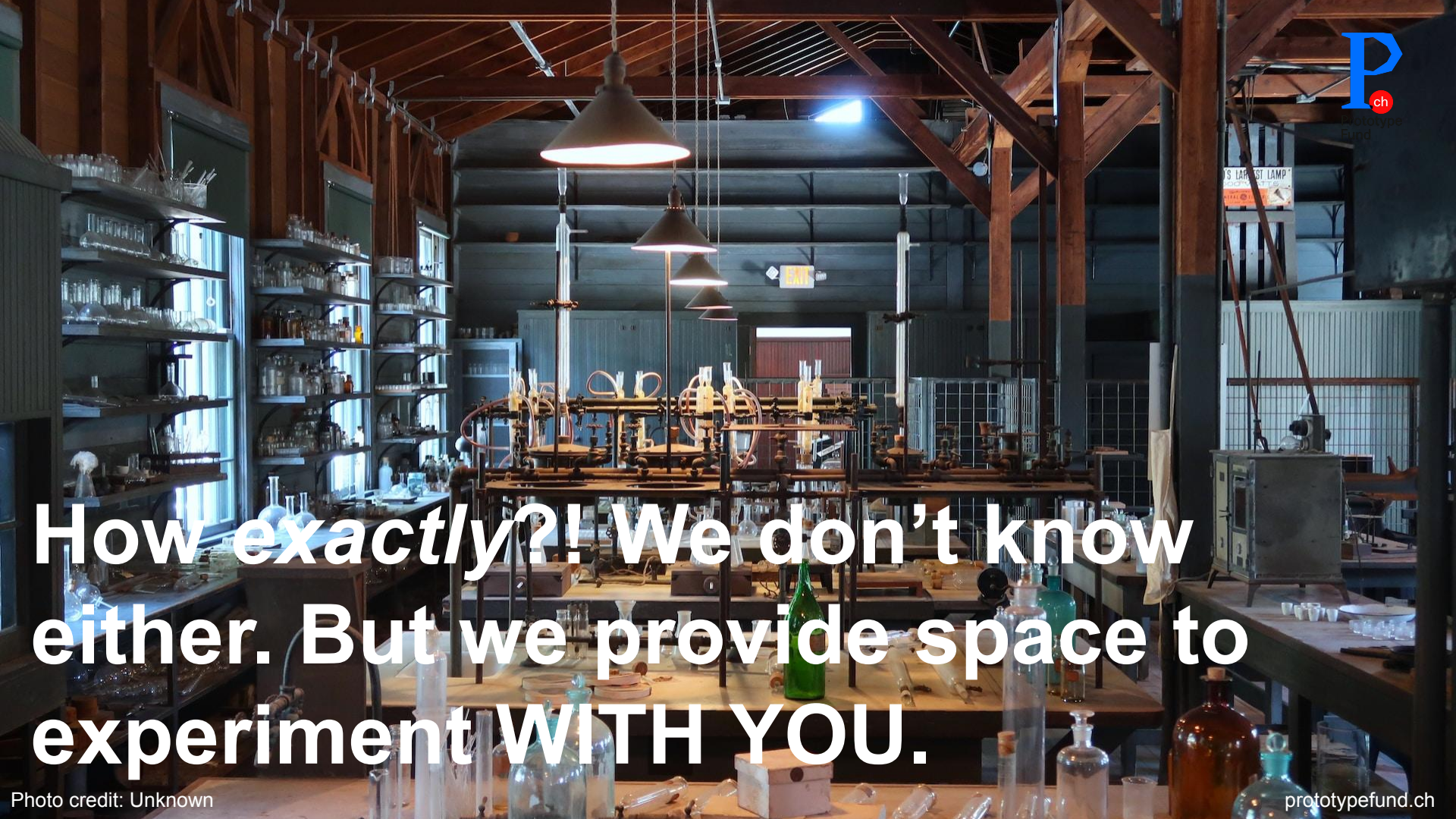


Photo credit: Unknown

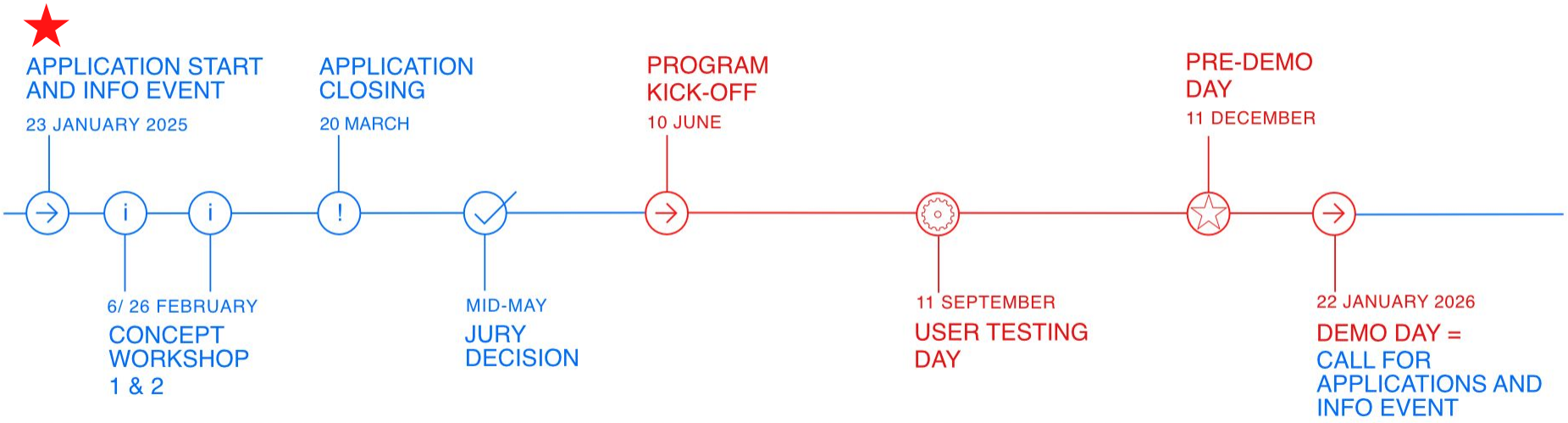
How Will the Prototype Fund Support You?

- **Up to CHF 100,000** per project for 6 months - 3 projects total in this round
- **Coaching** and **workshops**
- Access to a **network** of experts and like-minded individuals

Focus on Sustainable Digitalization + Sufficiency

- Applications kick-off today: **23 January 2025**
- **Focus topic**: ecologically sustainable digitalization and “digital sufficiency”
- Highlight the **relevance of the connection between technology and sustainability**
- **Raise awareness** of the concept of sufficiency in the context of digitalization

The Timeline for This Edition



Selection criteria

Eligibility

- ❑ Contribution to (ecologically) sustainable digitalization?
- ❑ Open-source solution?
- ❑ Open data and public accessibility?
- ❑ Applicant’s age (18+)?
- ❑ Swiss work permit?

Evaluation

- ★ (Digital) sufficiency = (Reduction of absolute resource consumption through/with digital technology)
- ★ Innovation*
- ★ Feasibility and team capabilities
- ★ Long-term impact

Specials Up Next: Concept workshops (2x)

- ★ Prep for submission and refine your idea
- ★ Meet like-minded people and possibly expand your team
- ★ Get additional input thanks to our expert network

=> 6 and 26 February

Scan to RSVP:

Ready to Submit Your Idea!?

- **Apply by 20 March** via prototypefund.ch
- **Follow us** on LinkedIn and Mastodon
- **Spread the word** and share with your network!
- **Join** our newsletter community

Questions?

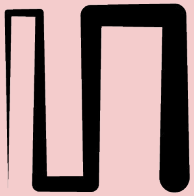
Prototype Fund

Foundation collab & Basel

Dr. Alexander Suter, Christoph Merian Foundation

Prototype Fund

Massive Thanks to



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cms

Christoph Merian Stiftung

Reach Out Via

- www.prototypefund.ch
- @prototypefundch (LinkedIn, Mastodon)
- info@prototypefund.ch

Contact point: Verena Kontschieder,
Program Lead Prototype Fund CH

Prototype Fund

Apéro
& Opening celebration

All of us. Enjoy!

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