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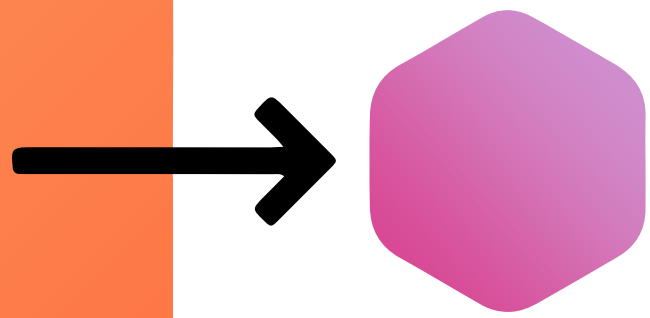
Innovative WärmeNetze GmbH

Universität Stuttgart
Institut für Energiewirtschaft und Rationelle Energieanwendung (IER)
Institut für Volkswirtschaftslehre und Recht (IVR)

Supported by:

Federal Ministry for Economic Affairs and Climate Action

on the basis of a decision by the German Bundestag

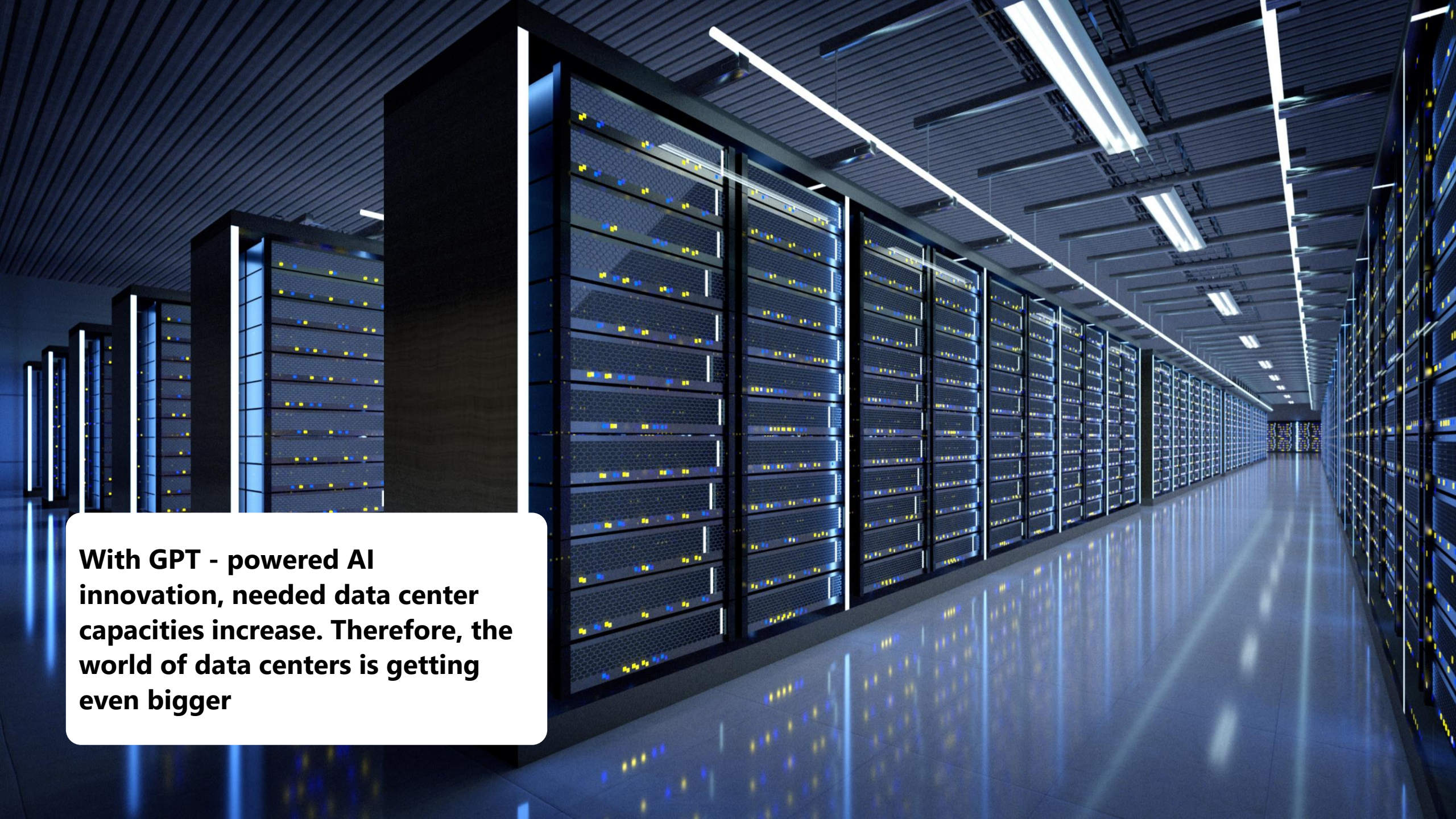


Green heat from data centers

Bytes2Heat: Where Waste Heat meets Purpose

Data Centre World 2023 | GREENTECH & ENERGY EFFICIENCY THEATRE | 11 May 2023 | Mira Weber & Benjamin Ott

Note: The images used are sourced from the Microsoft Office archive, Unsplash, Pexels, and Pixabay



With GPT - powered AI innovation, needed data center capacities increase. Therefore, the world of data centers is getting even bigger

While operating, data centers generate an immense amount of waste heat, which is often released into the environment without being utilized

Thus, data centers offer great potential for green heat, and the pressure to utilize it is increasing. This is where Bytes2Heat comes into play

Increasing waste heat from DC

Unused waste heat offers increasing potential

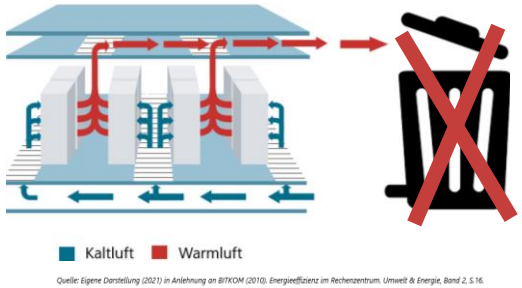
Pressure for utilisation increases

European Green Deal
EED

National climate targets and legislation

Increasing pressure on data centers & heat customers

Bytes2Heat = Solution



The mission of Bytes2Heat is to make waste heat from data centers usable and to resolve existing challenges so waste is put to good use

Challenges

Technical barriers

e. g. too low waste heat temperatures as well as the need for 24/365 heat extraction

Economic barriers

e.g., high investment requirements outside the actual core business

Lack of communication

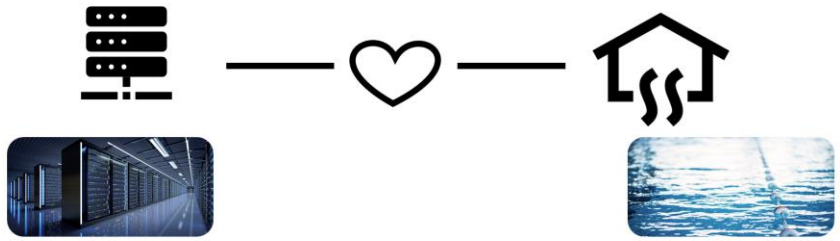
e.g., lack of clarity about possible matches for different stakeholder needs

Legal barriers

e. g. concern about dependencies and legal and tax disadvantages

Mission

Bytes2Heat aims to help make waste heat from data centers economically viable and overcome existing barriers



For Bytes2Heat, a competent team and network of experts comes together to harness the heat-power of data centers

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Federal Ministry of Economics and Climate Protection + Project Management Jülich

Project consortium

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Stefan Scherz, Managing partner

Project partner

BFE Ein Unternehmen der MVV — **André Martin & Till Boeder**

Danfoss — **Jörg Saar & Markus Lempp**

e·on — **Marcus Siepe & Melina Shaffu**

DATA2HEAT — **Gunnar Wilhelm & Nico Köllner**

DATA CENTER GROUP — **Dr. Dieter Thiel**

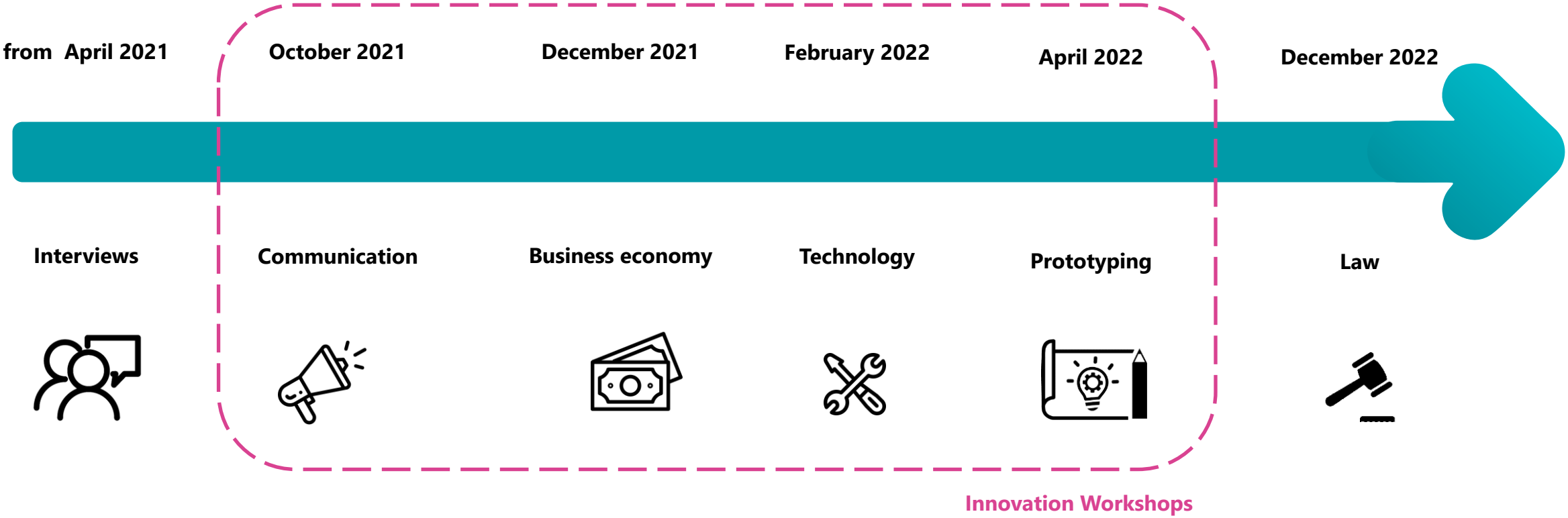
ENGIE — **Patricia Friedek-Angelucci & Franziska Chelvier**

Expert network

GASAG SOLUTION +
GERMAN DATACENTER ASSOCIATION
VATTENFALL
TELEHOUSE
NTT
Metropolregion Rhein-Neckar
STADT FRANKFURT AM MAIN
eco VERBAND DER INTERNETWIRTSCHAFT
VEOLIA
ISS ENERGY SERVICES
maincubes SECURE DATACENTERS
Keppel
...and many more

This team conducted numerous interviews and workshops to find innovative solutions for resolving challenges of waste heat utilization

Timeline of the Bytes2Heat innovation workshops



Based on the solutions outlined, the project team is currently developing different tools, pilot projects and the Bytes2Heat-platform

Coming soon

matching tool

Coming soon

quick check profitability

published

best practice overveiw

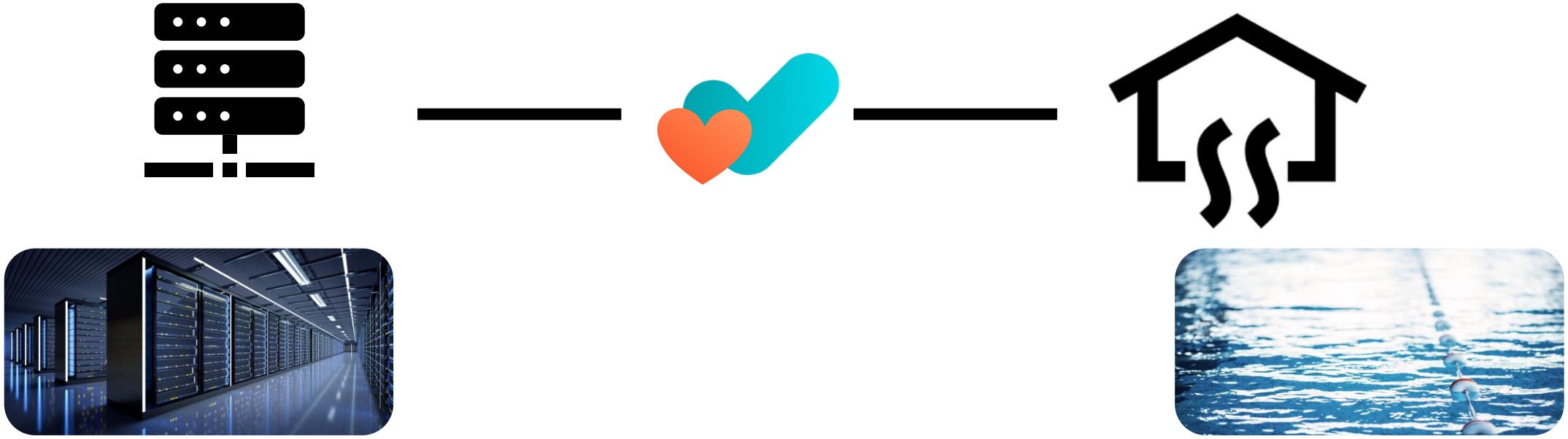
Coming soon

pilot projects

And many more tools

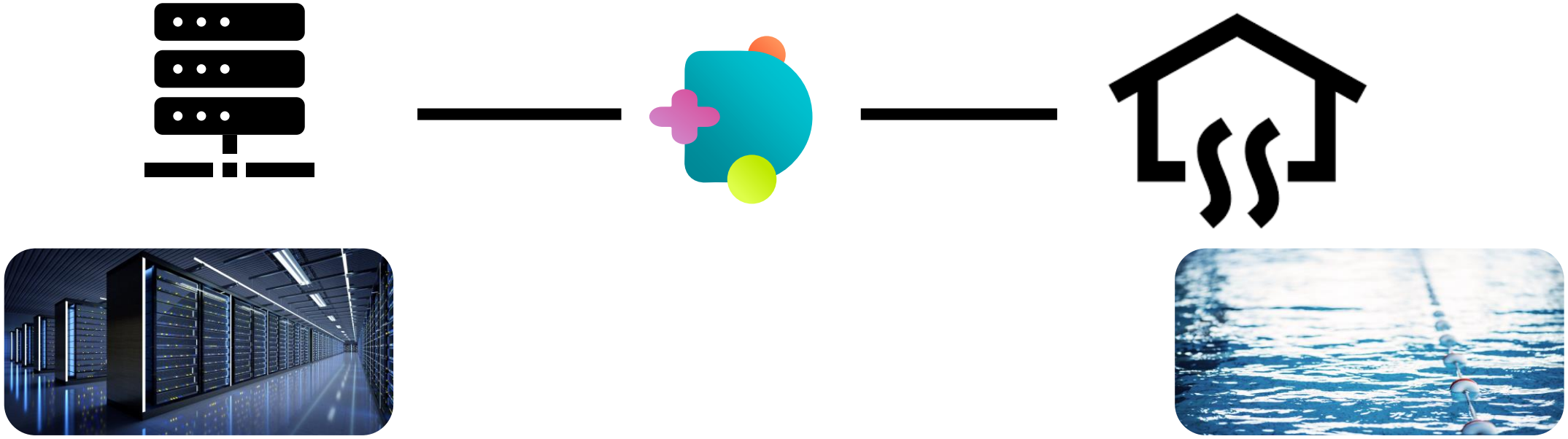
Bytes2Heat platform

With our Bytes2Heat matching tool we enable you to find the perfect waste heat partner by bringing together source and sink



Try our matching tool first! To do so, sign up for our Bytes2Heat newsletter in order not to miss the launch! Simply send an email to mira.weber@deneff.org

With our Bytes2Heat quick check, the profitability of potential waste heat recovery projects can be quickly calculated



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The best practice overview shows how waste heat from data centers can be used. With 99 examples from all over the world

Germany
37

Sweden
15

Finland
9

Netherlands
6

USA
5

Denmark
5

France
5

Switzerland
4

Norway
3

Great Britain
3

Austria
1

Canada
2

Ireland
2

Japan
1

South Korea
1

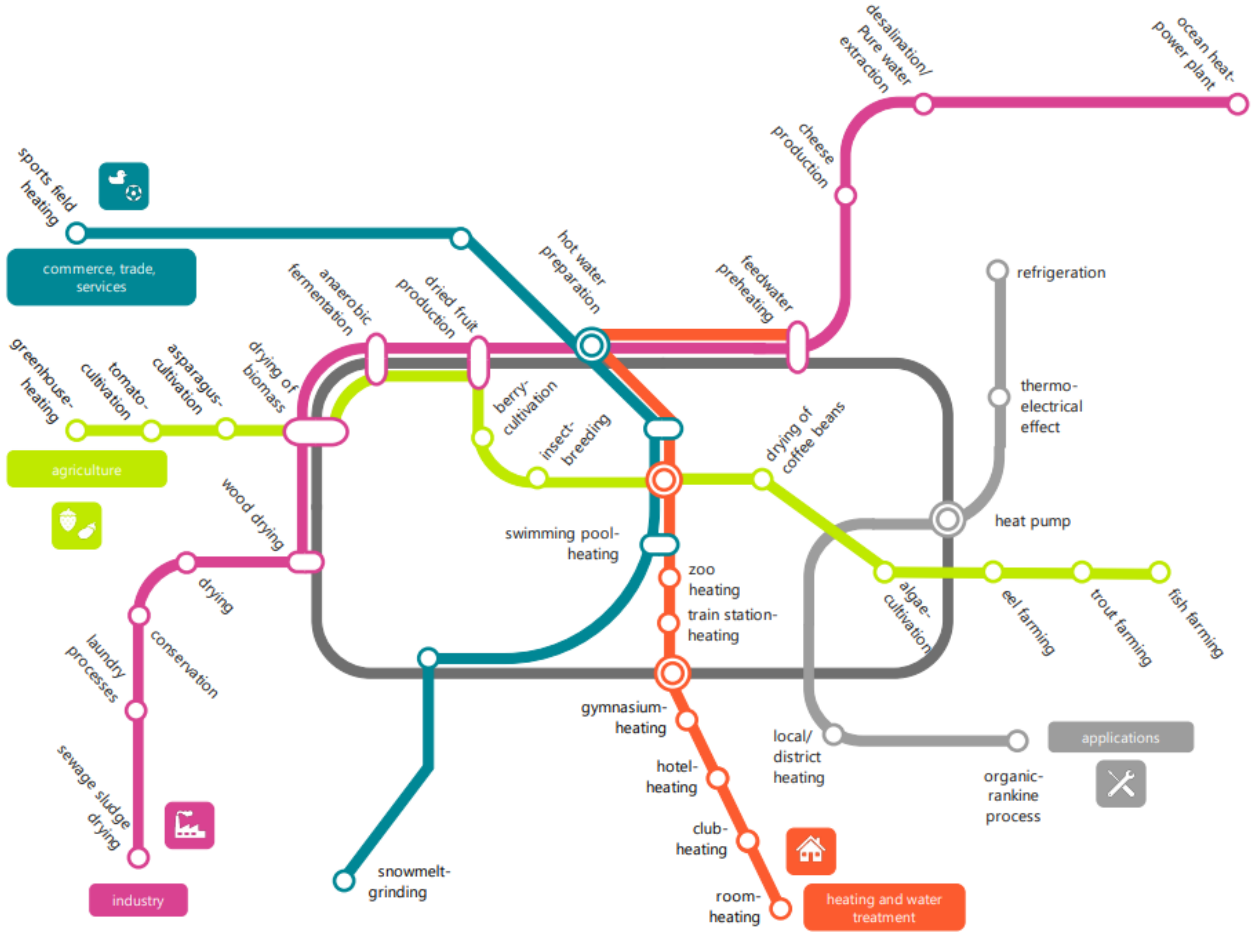
Try our best practice overview first! To do so, sign up for our Bytes2Heat newsletter in order not to miss the launch! Simply send an email to mira.weber@deneff.org

Our heatmap shows that the possibilities for utilizing waste heat from data centers are diverse with no limits to creativity

best practice overview

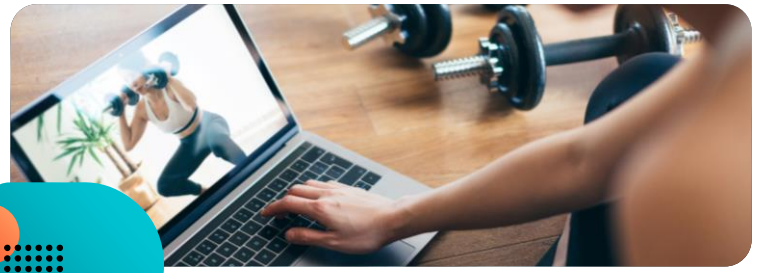
powered by BYTES2HEAT

Bytes2Heat Heatmap



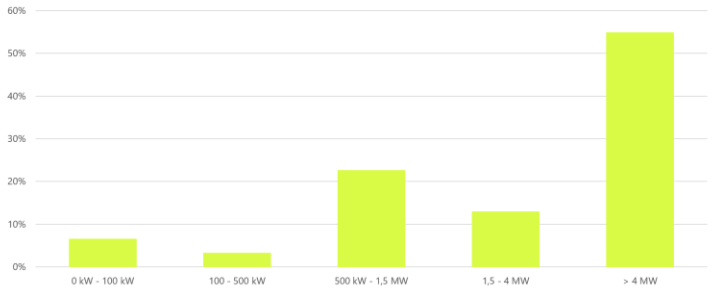
From algae cultivation to zoo heating, there could be an application for everyone

Best-Practice Insights: most examples have more than 4 MW IT power, 20-30°C waste heat and 50-70°C utilization temperatures



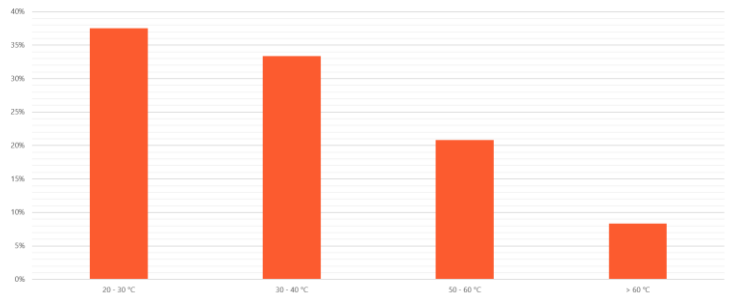
IT Power

Most data center waste heat examples in our overview have an IT power of more than 4 MW (n=31)



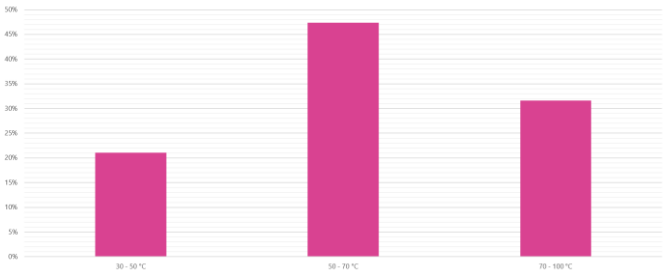
Waste Heat Temperature

Waste heat temperature typically ranges from 20-30 °C in the examples we have identified (n=24)



Utilization Temperature

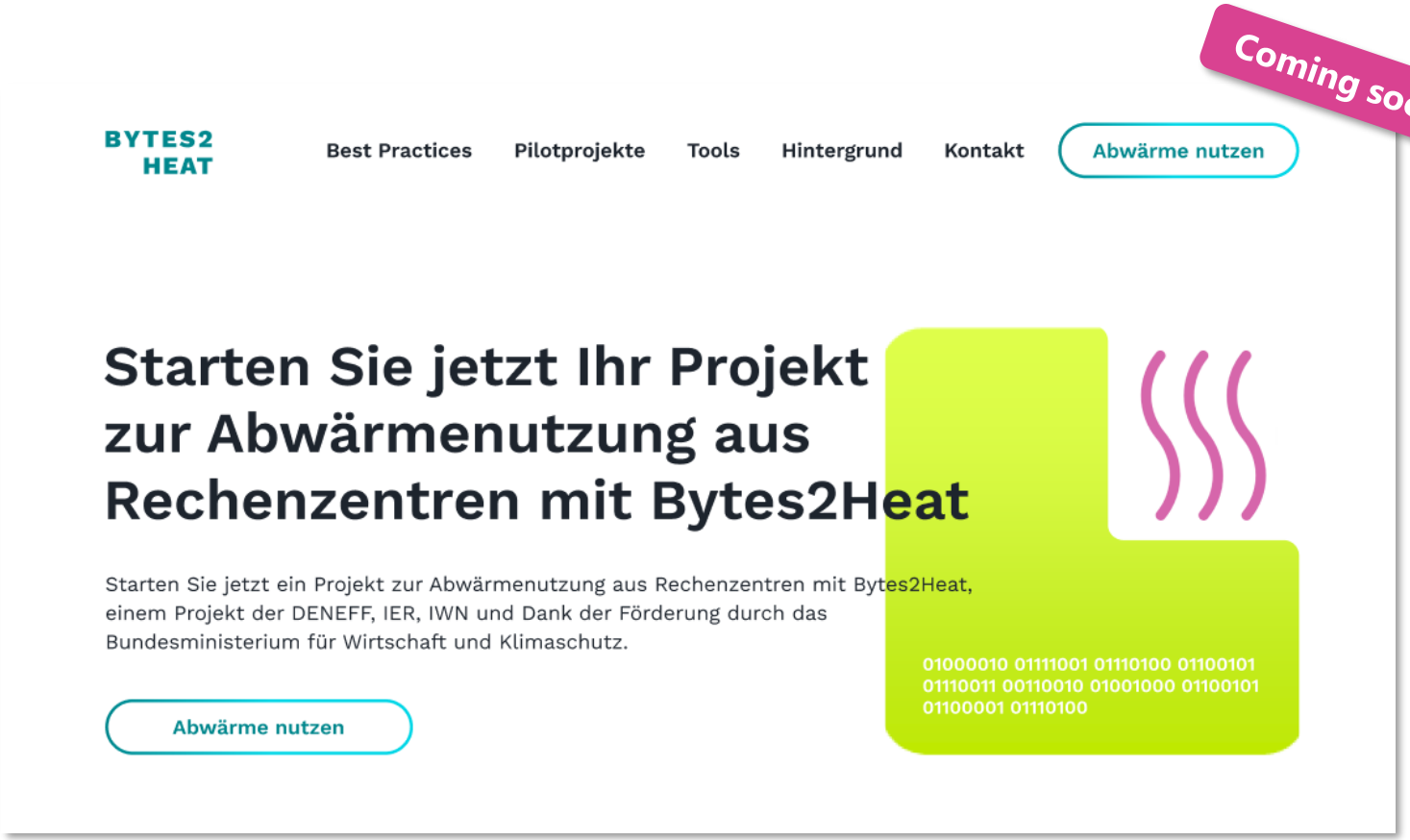
The utilization temperature for waste heat from data centers is commonly between 50-70 °C (n=19)



Best-Practice Overview Launch

Register now for the presentation on May 17th, 2023 from 3:30 PM to 4:30 PM to get more insights

These and many other tools are published on the Bytes2Heat platform. Subscribe now to make sure you don't miss anything

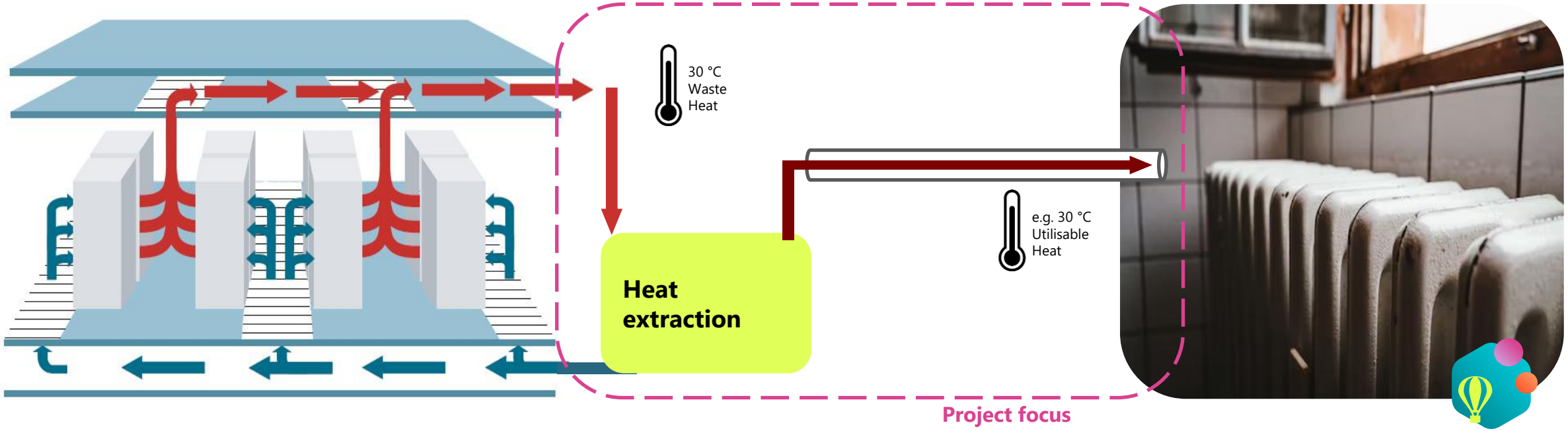


Newsletter subscription:

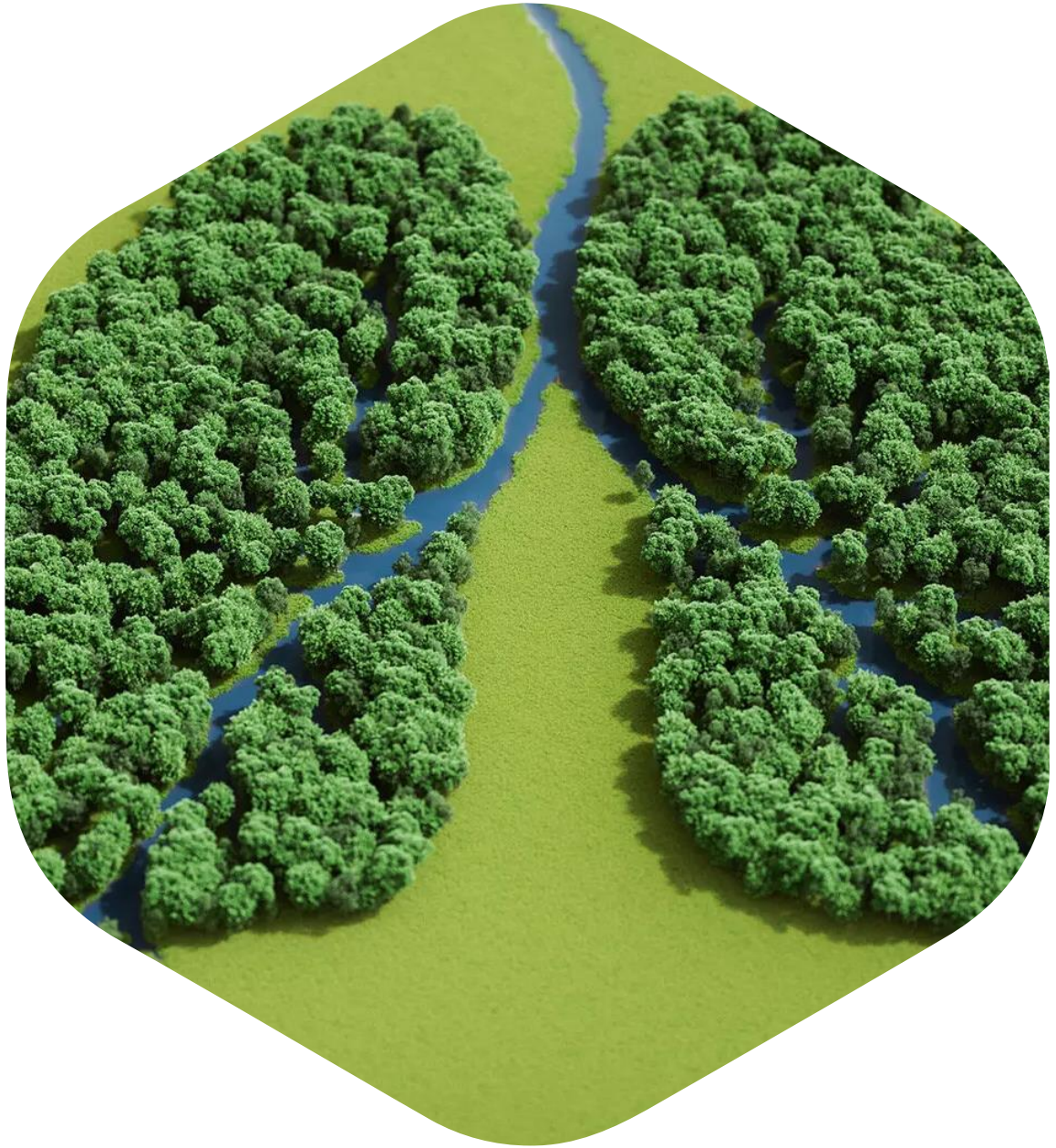
Do not miss any news from Bytes2Heat anymore

Pilot projects that Bytes2Heat initiates will also be announced on this platform – e.g. heating neighborhoods with waste heat

Possible use of waste heat in the neighborhood



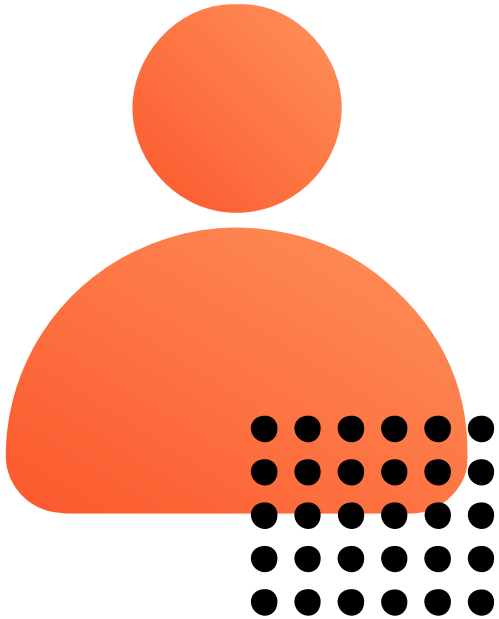
Source: Representation (2021) based on BITKOM (2010). Energieeffizienz im Rechenzentrum. Umwelt & Energie, Band 2, S.16.



Let’s unlock the power of waste heat from data centers together!

Contact persons

We look forward to your questions and suggestions. Please contact us!



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