



© Shutterstock

COLLOQUIUM DIGITALE  
„DIGITALISIERUNG, MENSCH UND GESELLSCHAFT“

# HOW SUSTAINABLE IS THE FOOTPRINT OF DIGITAL TECHNOLOGIES?

AN ONLINE WORKSHOP ON DIGITAL TECHNOLOGIES,  
ENERGY, AND SUSTAINABILITY

A life without digital technologies is almost inconceivable. However, what impact do digital technologies have on our energy infrastructure, and how sustainable is the use of information and communication technologies and thus the transformation(s) they bring about? This workshop provides the space to discuss the complex impact, challenges, and opportunities that the use of digital technologies has on our energy systems, and on sustainable development overall.

# PROGRAM

## WELCOME & INTRODUCTION

**Georg Brasseur** | President of the Division of Mathematics and the Natural Sciences, Austrian Academy of Sciences

## IMPULSE LECTURES

**Vlad C. Coroamă** | Senior Research Associate, Computer Science Department of the ETH Zurich  
*Digitalization and Sustainability – The Good, the Evil, and the Complex*

Information and communication technologies (ICT) pervade ever more sectors of our economies and societies, bringing about profound societal, economic, and environmental transformations. These can be either beneficial or detrimental to sustainable development, and can often lead to conflicting goals and trade-offs. In particular, ICT can help reduce societal energy consumption and carbon emissions, by making existing processes more efficient or substituting them altogether. On the other hand, however, ICT itself features an ever-growing energy and carbon footprint and – arguably more important – by the very efficiency gains it induces, it can also cause more economy-wide consumption of diverse goods and resources through various rebound effects. The presentation addresses this complex relationship and possible ways out of its dilemma.

**Steffen Bettin** | Researcher, Institute of Technology Assessment, Austrian Academy of Sciences  
*Digitalisierung, Energiewende und Infrastruktur*

Energie-Infrastruktur ist langlebig! Heute getroffene Entscheidungen zu ihrer Ausgestaltung werden uns noch Jahrzehnte beeinflussen; genauso wie unsere heutige Welt ein Ergebnis von weit zurückliegenden Entscheidungen ist. Energie-Infrastruktur ist geprägt von sozialen und technischen Pfadabhängigkeiten und Lock-Ins, steht aber auch durch die Klimakatastrophe vor notwendigen großen Umbrüchen und einer Energiewende.

Der Vortrag beleuchtet vor diesem Hintergrund nun digitale Systeme wie smart grids. Diese haben das Potenzial, das Thema Energie nun wieder vermehrt in den gesellschaftlichen Vordergrund und näher an Endnutzer\*innen zu bringen, was mit neuen Herausforderungen und Chancen einhergeht.

**Lynn Kaack** | Assistant Professor of Computer Science and Public Policy, Hertie School, Berlin  
*AI and Climate Change*

Climate change is one of the most pressing issues of our time, and addressing it will require rapid, systemic approaches involving technology, policy, and society. Artificial intelligence (AI) and machine learning (ML) offer new techniques that are driving innovation across many sectors, and as such have a multi-faceted relationship with climate change. This talk will provide an overview of how different AI technologies can play a role in supporting climate change efforts. We will also cover how AI can affect climate action in negative ways, and discuss the compute-related emissions footprint associated with the technology.

COFFEE BREAK

## BREAKOUT SESSIONS

## ROUNDTABLE DISCUSSION

**Moderated by:**

**Ivona Brandić** | Professor for High Performance Computing Systems, Vienna University of Technology

## CLOSING STATEMENT

**Ivona Brandić** | Professor for High Performance Computing Systems, Vienna University of Technology

**Georg Brasseur** | President of the Division of Mathematics and the Natural Sciences, Austrian Academy of Sciences

The working languages of the workshop are English and German.

**REGISTRATION REQUIRED:** Please send an email to [kathrin.humphrey@oeaw.ac.at](mailto:kathrin.humphrey@oeaw.ac.at) to register for this workshop by March 11, 2022.

**CONTACT:**

Kathrin Humphrey, M.A.  
Austrian Academy of Sciences

[kathrin.humphrey@oeaw.ac.at](mailto:kathrin.humphrey@oeaw.ac.at)

T: +43 1 51581-1208