

September 2019

Digitalisation

Information on the projects funded by the Deutsche Bundesstiftung Umwelt



Digitalisation as a tool for sustainable development

Artificial intelligence, blockchain, data mining, augmented reality – these are all buzzwords for a trend that is rapidly accelerating while at the same time affecting more and more areas of our everyday lives: digitalisation. »How can we take advantage of the possibilities offered by digitalisation in order to benefit the environment while at the same time keeping an eye on the risks? For the DBU, it's about how we can utilise digital manufacturing, business and information processes in order to conduct business in a way that preserves our natural living environment and does not exceed the limits of the planet's capacity,« says DBU General Secretary Alexander Bonde explaining the challenges that arise as a result of new technologies. That is why all of the DBU funding subjects approach digitalisation as a tool for viable, sustainable development – not only in terms of the economy but also in terms of the environment and our society. The DBU primarily focuses on SMEs: »Digitalisation demands from the DBU's core target group – small- and medium-sized enterprises – the ability to master drastic changes. At the same time, digitalisation acts as a catalyst for innovation in the environmental sector in Germany, making it part of the solution to the hurdles we currently face,« clarifies Bonde.

DBU-sponsored studies at the Hochschule Osnabrück confirm: The greatest advantage of digitalisation for companies in terms of the environment is that it offers greater opportunities to manage material flows and consumption and continually monitor processes. However, digitalisation and sustainable development are currently overwhelmingly considered separately. In order to help SMEs and their partners in particular to incorporate sustainable acting into their digital change and innovation processes, the DBU, together with the Hamburg-based Bundesdeutscher Arbeitskreis für Umweltbewusstes Management, B.A.U.M. e. V., has launched

nachhaltig.digital – a competence platform for sustainability and digitalisation in SMEs. **nachhaltig.digital** is a place for ideas, products, solutions, inspiration and discussions – digital and analogue, online and offline, virtual and in real life (see page 3).

»We here at the DBU feel that digitalisation offers a great deal of potential for new, environmentally friendly products and services for SMEs in particular. That's why we are increasing awareness of digitalisation and the environment even further by funding projects that address this topic,« says Bonde.

DBU – We support innovation

The Deutsche Bundesstiftung Umwelt (DBU) funds innovative, exemplary, solution-oriented projects that are in line with the aims and the guiding principle of the foundation. These projects have the goal of protecting the environment while considering the needs of SMEs. Funded projects must achieve sustainable outcomes in practice, create momentum, and generate a multiplier effect. The DBU considers climate change, loss of biodiversity, waste of resources and harmful emissions to be the main challenges we currently face. For this reason, the DBU funding subjects draw on the latest scientific findings on »planetary boundaries« as well as the Sustainable Development Goals set out by the UN.

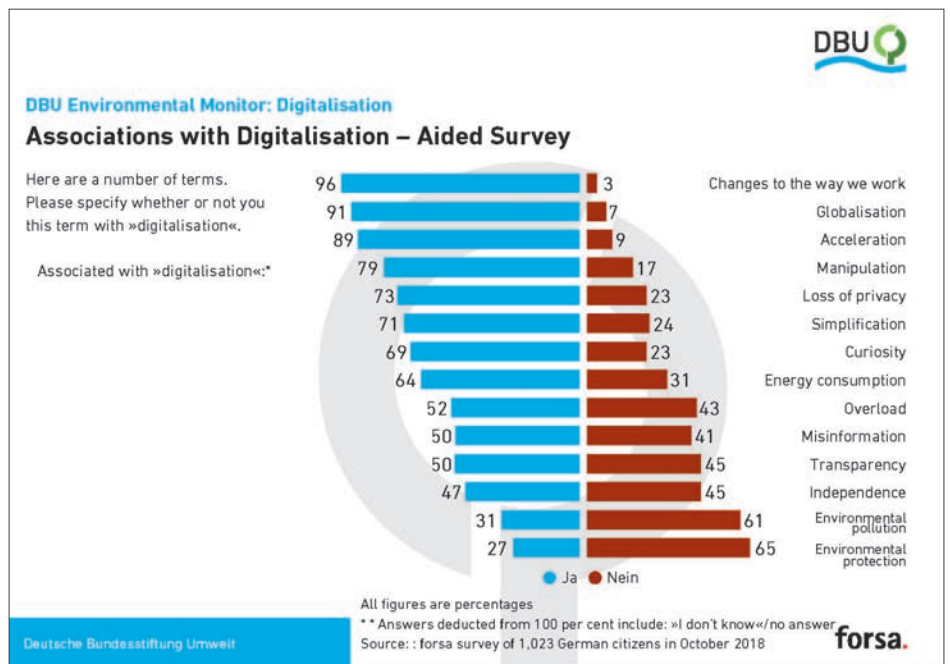
You can find more information at www.dbu.de

DBU Environmental Monitor: Digitalisation

Digitalisation is one of the largest trends and most important innovation drivers of the 21st century. However, one-fifth of all German citizens have no idea what digitalisation means. This was the result of »DBU Environmental Monitor: Digitalisation«, a survey of 1,023 German citizens conducted by forsa Politik- und Sozialforschung GmbH, Berlin. Even though 58 per cent had already thought about what kind of impact digitalisation could have on the environment, the majority of respondents did not associate the terms »environmental pollution« (61 %) or »environmental protection« (65 %) with digitalisation.

»We need to think about environmental protection and digitalisation together, rather than separately,« says DBU General Secretary Alexander Bonde. »Digitalisation requires an environmental framework. At the same time, the ecological potential of digitalisation in terms of energy and resource savings, new mobility concepts, and modern manufacturing and work processes is enormous.« According to the respondents, the task of exploiting this potential falls to industry and the government. A total of 78 per cent of those surveyed responded that the manufacturers and suppliers are responsible for developing and designing products or services to be as environmentally friendly as possible.

Respondents also judged the future relevance of the topic of environmental protection and digitalisation to be particularly high: The vast majority (92%) across the entire political spectrum felt that it was important or very important for the government, industry, and society to pay closer attention to the possible environmental consequences of digitalisation.



Bonde: »It is encouraging to see that people think that the environmental impacts of digitalisation are important. Now we need to follow this up with action across party lines.«

The DBU's general aim is to contribute to solving current environmental problems. For that reason, the foundation will continue to dedicate itself to the topic of digitalisation by supporting and funding projects, studies, educational programmes and events, and will introduce the resulting scientific findings into both societal and political debates.

You can download the study here:
www.dbu.de/umweltmonitor

Exemplary DBU-funded projects

Using a smartphone for sustainable fertilising, AZ 33702



Test the soil and enter the results in an app and the app displays the nutrient content of the organic fertiliser being used.

Nitrogen surpluses in the soil and nitrate-contaminated groundwater continue to be an issue. Because lab analyses are complicated and expensive, up to now there have been very few recent studies on the nutrient content of commercial fertilisers such as manure or fermentation residues from biogas plants. As a result, the sprayed nutrient quantity may be much higher than what is actually required. For this reason, the Hochschule Osnabrück, in cooperation with the Landwirtschaftskammer Niedersachsen in Oldenburg, and the Leibniz-Institut für Agrartechnik und Bioökonomie in Potsdam, launched a project to evaluate a variety of methods for determining the nutrient content in organic fertilisers on location, and then compared these findings to results obtained in the lab. At the end of the project, the team will present a set of the most effective testing methods for farmers to use in the field. In order to make it easy for farmers to use the data they collected through these tests in the real world, the test results will be compiled and fed into a central database using a smartphone app. This will make it possible to automatically compare these results with other operating data from livestock farms or feed plants, or from previous soil nutrient tests. The farmer will then receive information on the nutrient content of the soil via the app and can apply the appropriate amount of manure or fermentation residue accordingly.

Mobile recording of operating data in order to minimise material loss, AZ 33928

For companies, using materials efficiently and optimising internal processes are vital not only for economic reasons, but also for ecological reasons as well. However, due to gaps in operating data and a lack of expertise in terms of manufacturing systems, a great deal of potential remains untapped. For that reason, the Institut für Umweltinformatik Hamburg GmbH (ifu) and die Hochschule für Technik und Wirtschaft Berlin (HTW) are looking for ways to simplify, standardise and systematise data collection and analysis. First the project partners are developing an app that can be used to record the operating conditions of equipment, substance concentrations or inventory on a mobile end device. This will make it possible to individually analyse manufacturing processes and introduce specific measures to increase efficiency. In cooperation with the Umweltkompetenzzentrum Rhein-Neckar (UKOM), a new version of the app that tracks material flows in order to attribute a monetary value to the potential savings is currently in development. This will make it possible to carry out material flow cost accounting (MFCA) using the latest operating data collected on location in real time with a mobile device. The main idea is to use these kinds of modelling and simulation tools in order to provide companies with opportunities to reduce material losses during commercial manufacturing and eliminate barriers to entry when it comes to data collection.



alleantworten – the nachhaltig.digital sustainability platform

How can digitalisation be used ecologically, socially, ethically and economically in order to create a sustainable, liveable future? This is the core question behind **nachhaltig.digital**, the competence platform for sustainability and digitalisation in SMEs. The platform is a joint venture between the Bundesdeutscher Arbeitskreis für umweltbewusstes Management (B.A.U.M.) and the DBU with the objective of bringing aspects of sustainability into the discussion surrounding digitalisation and, in particular, integrating it into the digital processes of small- and medium-sized enterprises.

»Our motto is 'alle antworten – all the answers' because, on the platform, we are looking for all the answers and, alongside technical and economical questions, we are also asking ecological, social, ethical and cultural questions as well. We want to find all the answers, provide all the answers, and hear all the answers,« explains project coordinator Carl-Ernst Müller, continuing: »We want to enter into a dialogue with SMEs, their business partners, politicians and the media. We are looking for all the answers so that we can turn digitalisation into the best possible tool for creating a sustainable, liveable future.«

That is why the project combines the online platform [https:// nachhaltig.digital](https://nachhaltig.digital) with a variety of different events such as panel discussions, conventions, corporate workshops and networking events where attendees can share ideas and information. The networking and communication platform is operated by a project management and communications firm with five employees in two locations – Hamburg and Osnabrück. This interdisciplinary team compiles, discusses, evaluates and prioritises digitalisation trends. »We take a certain field – artificial intelligence, for example – and research different approaches, ideas and model projects, and then evaluate these on the basis of the opportunities

and risks in terms of sustainability, for example efficient use of resources. Together with partners from the worlds of science and industry, we want to share ideas, develop concrete cross-sector solutions, and pass on tried-and-tested approaches. We want the content of our platform to be useful and usable,« says Müller.



Charting a course for sustainability and digitalisation in SMEs: project manager Carl-Ernst Müller, B.A.U.M. (left) and DBU General Secretary Alexander Bonde at the **nachhaltig.digital** launch



The five-person **nachhaltig.digital** team with representatives from B.A.U.M. e.V. and the DBU at a team meeting in Hamburg (front row from left): Dr.-Ing. Jörg Lefèvre and Mark Probst (both DBU), Julia Fink, Beatriz Bilfinger, Anouk-Letizia Firle, Lisa Klose (all **nachhaltig.digital**); (back row from left) Jan Koch (B.A.U.M.), Carl-Ernst Müller (**nachhaltig.digital**), Martin Oldeland (B.A.U.M.), Dr. Volker Berding and Prof. Dr. Markus Große Ophoff (both DBU)

After the official launch in May 2018, **nachhaltig.digital** has introduced an interactive map that offers an overview of all stakeholders, events and examples of best practice in digitalisation and sustainability. Users can find more detailed information on the individual entries with a single click. Blog posts on topics such as the world of work, agriculture, mobility, new business models and ethics with input from research and practice as well as company portraits highlight the various facets of sustainability and digitalisation. An events overview shows where users can go outside the virtual realm in order to network, get to know one another and exchange information. »Everyone involved in the topic can participate by nominating their project for our **nachhaltig.digital** map!« says Müller. **nachhaltig.digital** can draw on a wealth of data, findings and stakeholders from numerous research and SME projects funded by the DBU as well as on events and contacts from both the DBU and B.A.U.M. Furthermore, **nachhaltig.digital** also serves as a meta-platform that connects industry associations, research grounds or SME 4.0 competence centres that are also working at the intersection of digitalisation and sustainability.

An advisory board comprised of representatives from the worlds of industry, science, politics and society support the project, and the »Charta digital network« corporate initiative acts as a strategic partner.

»Small- and medium-sized companies are the driving force for innovation in Germany and offer the ideal qualifications for a digital and sustainable approach to business and society,« explains DBU curator Dr. Antje von Dewitz, CEO of the sports equipment company VAUDE, member of the Unternehmensnetzwerk für Nachhaltigkeit (B.A.U.M.), and winner of the 2012 B.A.U.M. Environmental Award in the SME category. »The **nachhaltig.digital** competence platform can play a vital role in helping SMEs develop digital and sustainable innovations.«

Contribute to the **nachhaltig.digital** map: <https://nachhaltig.digital/landkarte>



Sharing ideas, developing concrete solutions, passing on tried-and-tested approaches – that is what **nachhaltig.digital** is all about. Here is a photo from the project launch with DBU curator Dr. Antje von Dewitz (centre).

Your contacts at the DBU for the topic of digitalisation

Dr.-Ing. Jörg Lefèvre, phone: +49 (0) 541 9633-210, e-mail: j.lefevre@dbu.de

The **nachhaltig.digital** team in Osnabrück:

Julia Fink, phone: +49 (0) 541 9633-934, e-mail: j.fink@dbu.de

Jan Rüter, phone: +49 (0) 541 9633-929, e-mail: j.rueter@dbu.de



We support innovation

Deutsche Bundesstiftung Umwelt
Postfach 1705, 49007 Osnabrück, Germany
An der Bornau 2, 49090 Osnabrück, Germany
Phone: +49 (0) 541 | 9633-0
Fax: +49 (0) 541 | 9633-190 www.dbu.de
www.dbu.de

Imprint

Publisher: Deutsche Bundesstiftung Umwelt (DBU), An der Bornau 2, 49090 Osnabrück, Germany, Phone +49 (0) 541 | 9633-0, Fax +49 (0) 541 | 9633-190, www.dbu.de//
Text and editing: Verena Menz, Julia Fink, Jan Rüter//
Publisher responsible for content: Prof. Dr. Markus Grosse Ophoff//**Design/typesetting:** Helga Kuhn//**Photo credits:** Page 1: © BillionPhotos.com – stock.adobe.com, Page 3, top: © WavebreakMediaMicro – fotolia, Pages 3 and 4, bottom Simon Veith – sustainable photography/www.simon-veith.com, All other photos: DBU