Umwelt Bundesamt

Digital steering tools for environmental and sustainability management

Summary of the main research results for software users

Within the framework of the project (research code 3720 14 104 0), possible applications of current digitisation trends for environmental and sustainability management as well as software solutions available on the market were identified and analysed. Surveys and interviews with software providers and users, as well as an expert workshop, were also used to examine the potential and obstacles of software use in environmental and sustainability management. Another focus of the project was the question of the extent to which software solutions can be used for environmental and sustainability management. As a result, recommendations for action were developed on how software providers and politics can support the digital transformation in environmental and sustainability management. The empirical results are documented in the final report on the project (Docke et al. 2022)[1]. Bütow et al. (2022)[2] interpret the results and derive recommendations for action in a policy paper.

Key research findings

► New digital technologies, such as automation, cloud computing or artificial intelligence (AI), have a wide range of applications in corporate environmental and sustainability management.[3] However, the technical possibilities are far ahead of the actual use in practice, as the application possibilities are often not known on the user side and are therefore hardly demanded so far. For this reason, software providers have little incentive to develop their products further in this direction. Other new digital technologies, such as blockchain, social networks or augmented and virtual reality, have hardly been used in environmental and sustainability management.

► Most software solutions cover several areas of application and are used in particular in the areas of environmental (85%), energy (78%), sustainability (75%), greenhouse gas (70%) and resource management (62%). Solutions for land use/biodiversity (30%), data protection (30%), product design (27%), human rights (22%) and anti-corruption (20%) are much less represented.

► A major advantage of the use of software solutions is seen by users in the reduction of workload through process optimisation as well as automation. In view of increasing customer and market requirements as well as government regulations, the software can support in particular the collection, analysis and visualisation of environmental and sustainability-related data.

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[1] https://www.umweltbundesamt.de/publikationen/digitale-steuerungsinstrumente-fuer-das-umwelt

[2] https://www.umweltbundesamt.de/publikationen/software-solutions-for-environmental-sustainability

[3] As part of the project, 10 factsheets were produced for the possible uses of digital technologies in environmental and sustainability management: https://www.umweltbundesamt.de/publikationen/umweltmanagement-digitalisierung-praktische

- ► The main obstacles to the use of software solutions are the financial and personnel costs associated with the introduction of software, including licensing costs or training requirements. From the perspective of small and medium-sized enterprises, many software solutions are too complex and designed more for large companies, so the costs exceed the benefits for them.

- ► In general, software solutions are to be understood as management tools that can contribute to improved decision-making in environmental and sustainability management. However, an improvement in a company's environmental and sustainability performance is primarily determined by the strategic objectives of management and the implementation of operational measures.

- ► At present, environmental and sustainability-related information does not seem to have much relevance in ERP systems or BI tools for central corporate management. For many users, an integration or linking of software for environmental and sustainability management and software for central corporate management would be desirable and useful to make management more aware of these topics. From the point of view of many providers of software for environmental and sustainability management, the creation of interfaces makes more sense than the complete integration of the systems, as this allows the special software to be developed more precisely for the specific areas of application.

The complete results can be found in the final report on the research project. Detailed information on the recommendations for action developed for policymakers and software providers can be found in the published policy paper, which was prepared on the basis of the empirical research findings.

Suitable software solutions for environmental and sustainability management can be searched for and offered via the software database designed as part of the project.

Further information

As part of the project, an online database was designed in cooperation with the Umweltgutachterausschuss (UGA), which can be used to search for and offer suitable software solutions for environmental and sustainability management.

In addition to the database, you will also find a checklist that supports you in the selection process of a suitable software provider or the context of a software implementation project.