

IDENTIFYING A PORTFOLIO USING ARTIFICIAL INTELLIGENCE

Background

The application of artificial intelligence (AI) in evaluations has the potential to improve processes and methods.

Development cooperation (DC) actors often face the challenge of establishing a portfolio on a specific topic or country. A comprehensive portfolio is important for drawing conclusions about the range of projects and the volume of funds deployed in that area. However, identifying a portfolio is often complicated by the absence of a clear definition of the subject matter or thematic markers.

The extent to which AI can be used in portfolio identification was piloted in the German Institute for Development Evaluation (DEval) evaluation “Promoting a circular economy in German development cooperation” (Römling et al., 2025).

Artificial intelligence for a circular economy

In a circular economy, economic processes are organised in a circular manner to reduce resource consumption and waste generation. This economic policy approach is promoted across many sectors and can be applied in all phases of the product cycle. However, in the context of DC, there is neither a thematic marker nor a guiding document with a detailed description of circular economy, which makes portfolio identification more difficult.

One approach to identification is to use a portfolio compiled by the actors themselves. This manual query approach yielded 172 circular economy projects with a focus on waste management between 2020 and 2023. However, this approach revealed that the actors use different identification strategies, such as selection based on specific sectors or a keyword search.

To ensure a consistent approach, an additional portfolio was identified using AI. This helped identify knowledge gaps regarding sectors and other actors that finance or implement circular economy projects. The team was able to analyse a large number of project descriptions, which would have required significant resources if done manually.

Approach and results of the AI portfolio analysis

The dataset for the AI analysis consisted of approximately 25 000 publicly available project descriptions from 2020 to 2023. This analysis drew on data from the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee’s Creditor Reporting System.

First, the dataset was examined. A prompt for the analysis was then developed to define how the AI model would classify the data. The analysis prompt was then validated manually using various random samples to confirm its quality and detect systematic errors at an early stage. The individual steps are presented below:

- 1. Testing the prompt:** first, the prompt for the AI model was developed and tested using a random sample of project descriptions. The prompt incorporated the definition of circular economy composed by the Federal Ministry for Economic Cooperation and Development (BMZ). Based on this definition, the AI model was instructed to classify whether a project is related to circular economy and to justify its decision.
- 2. Manual validation:** the results were verified manually, and then the prompt was refined to be more specific. This process was repeated until sufficient agreement between the AI model’s classification results and the manual verification was achieved (at least 85 percent).



- 3. Validation by testing a random sample:** the final prompt was validated using a newly drawn random sample. This test also showed sufficient agreement between the AI model and the manual coding (at least 85 percent).
- 4. Application:** finally, the quality-controlled prompt was applied to all 25 000 project descriptions.

The AI model classified a total of 1 116 circular economy projects. Compared to the 172 identified in the manual query compiled by the actors, the AI model identified significantly more projects than the actors themselves, including the BMZ or the Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety (BMUKN). Figure 1 shows that this applies both to sectors in which ministries already focus on circular economy projects and to sectors such as agriculture and forestry, where previously no or only a few circular economy projects had been identified by the actors.

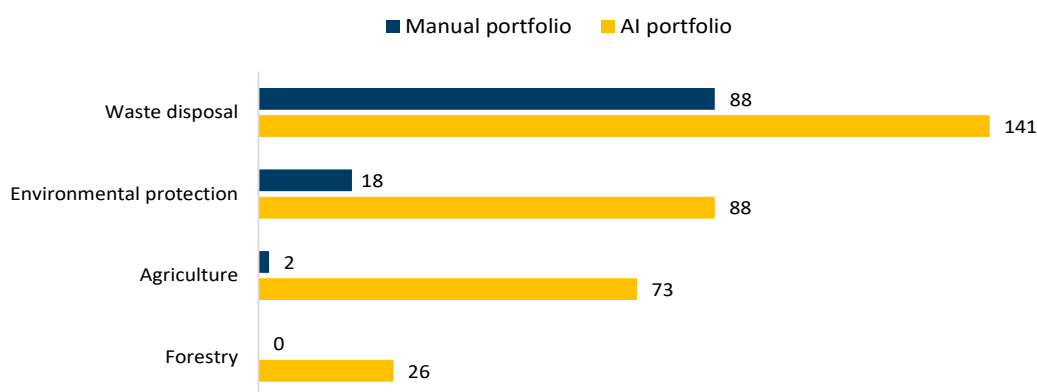
The AI model was also able to identify projects implemented by other federal ministries. The resulting AI portfolio is more comprehensive than the manually compiled portfolio. However, errors cannot be ruled out, for example due to incomplete project descriptions.

Conclusion

With sufficient project information and a precise, well-defined prompt, AI can be used to identify projects for a selected area from large databases. This method can support actors in building, managing or implementing their portfolios.

However, developing a quality-controlled methodology requires significant time and technical expertise. AI-assisted analysis also requires subsequent human validation to ensure that evaluation standards such as transparency, comprehensibility and accuracy are maintained.

Figure 1 Number of circular economy projects in selected sectors



Source: DEval, own visualisation

Literature

Römling, C., K. Guffler, L. Kunert, L. Welk and J. Schnell (2025), *Förderung der Kreislaufwirtschaft in der deutschen Entwicklungszusammenarbeit*, [Promoting a Circular Economy in German Development Cooperation], German Institute for Development Evaluation (DEval), Bonn.

Laura Kunert
Evaluator

Dr Cornelia Römling
Team Leader

Amélie zu Eulenburg
Head of Department

Dr Kerstin Guffler
Head of Department

The German Institute for Development Evaluation (DEval) is mandated by the German Federal Ministry for Economic Cooperation and Development (BMZ) to independently analyse and assess German development interventions. Evaluation reports contribute to the transparency of development results and provide policy-makers with evidence and lessons learned, based on which they can shape and improve their development policies.