

Handout – Workshop “System of AI Accountability in Financial Services: Quantifying AI Ethics Principles Ethical Problems”

The high competitiveness between the actors of the financial industry has intensified with the accelerating integration of AI technologies in finance, or penetration of FinTech on the market. Traditional banking businesses are motivated to integrate AI technologies in their processes. The complexity of AI technologies and the high level of regulatory and financial risks associated with their implementation are the main obstacles for the prompt integration of AI in business processes. To address this problem, our workshop aims to find approaches that would allow us to quantify the degree of adherence to the ethicality of AI-based applications. As an exemplifying case, we will study an AI-based credit scoring application and its characteristics which would allow us to evaluate its adherence to the ethical principle of transparency.

Use Case: Credit Scoring (CS)

A CS AI tool developed and tested in the EU and based on Neural Networks models (making it quite obscure) is put on the market. The company proposing it claims that their tool expands access to capital and financial services for marginalized communities and uses both financial and non-specified alternative data for decision-making when the client gives a consent to disclose its data, as required to comply with GDPR.

Credit Underwriting is a manual, subjective and in-depth assessment of the probability of bankruptcy of a potential borrower. This process takes place when deciding whether a client is eligible for credit or not, and the interest rate that would be for this credit. **Credit Scoring (CS)** is credit underwriting that uses an automated algorithm, or AI, to analyze the borrower’s data.

AI-based CS applications can differ in the models that are used to predict the likelihood of loan repayment. The choice of model depends on the size and quality of the data, the complexity of the credit decision and the specific needs of the lender. The most popular AI models underlying CS approaches are those that can handle large sets of data while being accurate, those include Machine Learning (such as Random Forests or Gradient Boosting Machines) and Deep Learning Techniques (such as Neural Networks to learn complex data relationships). Natural Language Processing (NLP) is often used in conjunction with the above-mentioned models. Neural Networks and NLP are renown to be quite obscure when it comes to discerning how the decisions were made.

Among the stakeholders who use CS are lenders, such as banks, credit bureaus that collect the data of the borrowers for ratings, and consumers. The third-party stakeholders are data providers, regulators and credit scoring companies that develop and maintain CS models. Traditional CS assesses a creditor’s creditworthiness by weighting socio-economic factors such as payment history, financial records and purchasing habits against each other. AI-based CS tools differ in their interpretability, depending on the chosen model, or ability to provide explanations on a decision, they also vary in the feature selection used for their analysis. For example, these tools can use both financial and non-financial data, such as social media, text data and the online behavior of a borrower.