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AI in the Banking Sector: Lessons from the Schufa Case

Abstract: The advent of Artificial Intelligence (AI) has opened many opportunities and, equally, has brought many challenges. This is also true for the banking sector, as the Schufa case attests. The purpose of this paper is to examine the CJEU's decision in the Schufa case regarding AI use within the banking sector and its legal implications. This case questions recent practices concerning credit scoring and demands more robust protection of individual rights and a more accountable use of AI in the financial sector. The ongoing dependence of banks on automated decision-making to assess the creditworthiness of their clients raises important questions about transparency and fairness regarding the outcomes of such assessments. The paper offers an analysis of the GDPR, namely Article 22(1), and the criteria for automated decision-making clarified in the Schufa case, particularly in situations that fall outside the scope of the GDPR.

Keywords: AI in banking, automated decision-making, data protection, individual rights, legal implications

Introduction

Today, bank services are just a click away (Gavrila, 2024, p. 1415), thanks to the digital transformation that has come with the advent of the internet (Kozak & Golnik, 2020, pp. 285–286). Artificial intelligence (AI) has further transformed how banks operate and interact with their clients, enabling banks to optimise back-office processes, reduce costs, and increase productivity (Srivastava, 2024). One such process is credit scoring, 'a statistical method used to predict the probability that a loan applicant, existing borrower, or counterparty will default or become delinquent' (World Bank, 2019, p. 2). In other words, through credit scoring, banks assess the creditworthiness of their clients before deciding whether to disburse a loan. Not only that: as

discussed by Hurley and Adebayo (2016, p. 154), credit reports are also reviewed by employers and landlords, thus significantly affecting individuals.

Banks used to evaluate a client's creditworthiness based on credit bureau registries, which contained traditional and structured data such as employment and borrowing history, loan repayments, account balance, and such like (Bertrand & Klein, 2021, p. 3). However, in the era of big data, credit registries have started to rely more on unstructured data (Nan Jiang & Novik, 2021), such as mobile phones, social networks (Óskarsdóttir et al., 2019, pp. 27–28), behavioural loan tracking, location-based information, and mobile app data (Jiang et al., 2021), among others. AI has reconceived credit scoring by leveraging algorithms to analyse a wide range of data sources and predict the 'future financial behaviour' of clients (Cariaga, 2024).

In addition to assessing creditworthiness, AI-powered credit scoring is also used to detect fraudulent activities (Zagha, 2024). AI enables automated decision-making, whereby a third party, usually a private agency, uses AI-powered algorithms to assess the creditworthiness of an individual who applies for a loan, and lenders rely on this credit scoring to decide whether to grant the loan or not (Ettorre, 2023). Despite its advantages and the contention that it provides for more accurate predictions (Vidal & Menayovski, 2019), research suggests that it has also made credit scoring less transparent and more biased and unexplainable (Heaven, 2021). Because the AI used to make this assessment is trained upon existing data, which can be biased, it can only exacerbate existing divides (Vidal & Barbon, 2019, p. 6).

In the face of these advances, the Schufa case substantiates the ongoing tensions between technological advancements and safeguards for individual human rights and freedoms. While automated credit scoring reduces time and allows for more tailored financial services, it may discriminate against certain groups. The large amounts of data gathered from different structured and unstructured sources and fed into these algorithms may lead to an unfair playing field for consumers who want to access financial instruments. The so-called 'black box' feature of these algorithms makes the model unexplainable, difficult to understand, and less transparent for consumers. Hence the decision in the Schufa case helps us understand these complexities and paves the way for a more balanced approach between the utilisation of AI in banking services and more robust safeguards for individual human rights and freedoms.

1. AI uses in the banking sector: Algorithmic assessment of creditworthiness

A literature review attests to banks' growing reliance on automated decision-making processes. Credit ratings, predictions of bank failure, and the detection of cyberthreats are some of the many other instances where AI is used in the banking industry (Farishy, 2023, pp. 1726–1729). AI also accelerates anti-money launder-

ing operations (Jain, 2024) and, furthermore, allows for more personalised banking experiences and tailored financial advice (Narang et al., 2024, p. 131) through natural language processing for customer service automation and AI-powered chatbots (Kolleshi & Golemi, 2024, p. 77; Tabaku et al., 2025, p. 4178–4179). The use of AI in banking services has become a necessity rather than discretionary (Fares et al., 2022), giving rise to Banking 4.0, which integrates state-of-the-art technology in the daily operations of banks (Polireddi, 2024, p. 1).

Credit scoring, another expansion of AI in the banking industry, has changed how banks assess their clients' soundness; it largely departs from traditional methods involving subjectivity and bias in the assessment process (De Moor et al., 2018; Hughes, 2019). While automated credit scoring has reduced human intervention, hence subjectivity, it is not immune to biases, since the data used to train algorithms can also contain historical, selection, and measurement biases (Boyer, 2024). Moreover, these algorithms are unexplainable; therefore automated decisions based on algorithmic data lack the justification a human decision would provide. If individuals cannot understand how and why certain decisions affecting them are made by algorithms, challenging those decisions becomes difficult and issues of fairness and transparency emerge. Consumers should be able to challenge automated decisions, especially those that greatly affect their lives, such as loan decisions. A statement of reasons is instrumental in challenging a decision (Ettorre, 2022), and automated decisions contain no such reasoning.

2. 'Automated' decision-making under the General Data Protection Regulation

The General Data Protection Regulation (GDPR) provides safeguards against the effects of automated decisions (Silveira, 2023). Article 22(1) provides that 'the data subject shall have the right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her'. Article 22(1) has sparked many debates about its nature, namely whether it provides for an active or a passive right of the data subject. Some authors view it as a provision conferring the active right that should be invoked by the subject (Tosoni, 2021), while others view it as a general prohibition, namely an inherent right (Pery & Simon, 2024). National courts of the EU Member States have also interpreted Article 22 as a 'general prohibition' (Kuner et al., 2021, p. 96).

Another ambiguity concerning Article 22(1) revolves around the 'solely automated' criteria. As boundaries between human and automated decision-making are often blurred (Council of Europe, 2016, p. 4), courts have been called upon to interpret whether 'semi-automated decision-making' falls within the wording of Article 22(1). Several national courts have interpreted this provision narrowly, thus

excluding from its application decisions that involve human judgement in the process (Kuner et al., 2021, p. 98). Courts have so far upheld that meaningful human involvement in automated decision-making ensures the lawfulness of the processing (Judgment of the Amsterdam Court of Appeal, 2023). ‘Meaningful’ is the key word, implying that human intervention must be active and undertaken by someone with ‘authority, competence, capacity, diligence or independence’ (AEPD, 2024). These criteria must be assessed on a case-by-case basis. Evidence for and explanation of this active and meaningful intervention must be presented to data subjects, as ruled by the Amsterdam Court of Appeal in the Uber case (Judgment of the Amsterdam Court of Appeal, 2021). This approach ensures the transparency, explainability, and supervision of algorithms, which are the main principles enshrined in the GDPR, as well as key quality requirements for AI systems (Balasubramaniam et al., 2023, p. 2).

Another key requirement of Article 22(1) of the GDPR concerning automated decision-making is that such decisions must produce legal effects or significantly affect the data subject. The increasingly widespread use of automated decision-making algorithms has raised many concerns about the legal and societal impact of such decisions. There have been many devastating cases where people have been deprived of their fundamental human rights because of algorithmic bias. As emotionless and mechanical decision-makers (Woodruff et al., 2020, p. 5), these algorithms are opaque (Stefanski & Żywolewska, 2024, pp. 54–55, 58) and may yield biased and discriminatory outcomes, which are difficult to understand and challenge (Vaassen, 2022, pp. 2–3). Algorithms are important in determining various critical decisions, including selecting candidates for employment, prioritising patients for medical treatment, and approving loans, rental agreements, or college admissions (Ananya, 2023). The childcare benefits scandal in the Netherlands is the most demonstrative example of how algorithms can significantly and negatively impact the lives of many. The Dutch tax authority relied on self-learning algorithms to detect cases of incorrect and fraudulent childcare allowances. The algorithm was based on racial profiling and consequently led to many low-income families being falsely accused of fraud and their lives being ruined (Amnesty International, 2021). The case of Amazon is another example of a biased algorithm that excluded women from certain technical jobs (Dastin, 2018); the algorithm disproportionately weighted features such as gender (Rejmaniak, 2021, p. 32). Such decisions further aggravate gender inequalities, thus significantly affecting women entering the job market.

If all three of the abovementioned requirements are cumulatively met, the data subject has the right to request from the controller meaningful information about the logic involved in such decision-making, according to Article 15(1)(h) of the GDPR, unless exceptions provided in Article 22(2) apply. According to Article 22(2), paragraph (1) does not apply if 1) the decision is necessary for purposes of the contract between the data subject and a data controller, 2) proper safeguards are guaranteed

by the law to which the controller is subject, and 3) the decision is based on the data subject's explicit consent.

The recent judgment of the CJEU in the Schufa case has sparked a heated debate among academics and the banking industry. The ruling provides a broader interpretation of what constitutes automated decision-making given the significant effect that automated credit scoring may have on bank clients applying for loans.

3. The Schufa case

The Schufa case concerns an automated credit scoring that was provided by Schufa, a German private agency, to a bank regarding a client who was applying for a loan. An algorithm was used to determine the client's creditworthiness, which provided a low score (probability value) and ultimately led to the bank's refusal of the loan request. The client asked Schufa to disclose the data used for this scoring and erase allegedly incorrect data (Judgment of the CJEU, 2023, paras 14–15). Schufa denied the request, citing trade secrecy, and explained that it had a contractual arrangement with the bank, which provided that the bank receives automated credit scoring by Schufa, and that the final decision concerning loan disbursement lies with the bank (para. 16). As a second step, the client addressed the German Data Protection Authority (DPA) in Hesse with a request to be granted access to information and erasure (para. 17). The DPA rejected the request based on a lack of evidence regarding Schufa's non-compliance with the legal data protection requirements (para. 18). The client appealed the decision of the DPA before the Administrative Court in Wiesbaden, Germany (para. 19). The latter stayed the proceedings and made a request for a preliminary ruling from the CJEU on the interpretation of Article 22(1) of the GDPR and whether it applies to the activities of private credit-rating agencies such as Schufa (para. 27).

The central dilemma of the referring court was how to ensure legal protection in situations when contractual arrangements, such as those between Schufa and the bank, make it challenging to provide access to the additional information to which the data subject is entitled under Article 15(1)(h) of the GDPR. Schufa's disclaimer in the contract that the ultimate decision lies with the lender and should not be solely based on automated credit scoring leaves the data subject in limbo. On the one hand, it limits the liability of a private credit-scoring agency such as Schufa to provide further information because it is not the party which is adopting the automated decision-making (para. 23). On the other hand, while the bank is adopting the automated decision-making, it has no information on the data used for the credit scoring (para. 23).

Before clarifying this dilemma, the CJEU applied all three cumulative criteria of Article 22(1) of the GDPR to determine whether automated credit scoring falls within its realm. It held that concerning the first requirement of a 'decision', this concept is quite broad and encompasses 'the result of calculating a person's creditworthiness in

the form of probability value concerning that person's ability to meet payment commitments in the future' (para. 46). Concerning the second criterion, namely that the decision must be based solely on automated decision-making, it has been already established that according to the narrow interpretation of Article 22(1), decision-making that involves a meaningful human intervention is out of the scope of the GDPR. According to the CJEU ruling, although 'automated', the final decision concerning the loan disbursement might still be human, especially in banks that apply so-called 'multi-stage profiling' (Ettorre, 2023), which involves both human and automated decisions (Binns & Veale, 2021, p. 321). However, for this to happen, the bank must play a 'decisive role' in granting loans (Opinion of Advocate General, 2023, paras. 46–47). In the Schufa case, the indications were that the bank's decision was greatly 'predetermined' by the automated scoring (Opinion of Advocate General, 2023, para. 47); therefore, the automated score formed the 'decision' (para. 47). Schufa argued that it only provided preparatory data on which the lender's decision could be based, an argument which was rejected by the Court (Clark & Grentzenberg, 2023). As regards the third criterion, the CJEU ruled that credit scoring amounts to profiling, leading to decisions producing legal effects or significantly affecting individuals, namely a refusal to grant the loan applied for (Judgment of the CJEU, 2023, paras 48, 61, 62). With all three cumulative criteria met, the CJEU ruled that individuals are entitled to request and receive meaningful information regarding the logic behind automated scoring. This information is to be provided by agencies like Schufa because, according to the CJEU, the automated score formed the decision and the bank just endorsed it (paras 61–62).

While the CJEU ruling in the Schufa case strengthens data protection and enhances transparency concerning the logic behind automated decisions and the inner workings of the algorithms involved, many fear growing challenges in the financial sector and beyond (Abrams & Goldstein, 2023). Cani and Mazelliu (2025, pp. 518–523) demonstrate that robust governance frameworks such as transparency, accountability, and rigorous oversight in automated processes are required to safeguard individuals' rights, a lesson no less applicable to AI applications in banking.

From the perspective of data subjects, with the increasing use of AI in banking services and the automatisisation of decisions in many other private and public sectors, the landmark ruling in Schufa ensures that opaque algorithms do not discriminate against individuals. It also extends the obligation to comply with Article 22(1) of the GDPR to credit reference agencies, and not only lenders, in situations when automated scoring is decisive and significantly affects individuals (Boardman & Löfling, 2023). This case also confirms the very nature of Article 22(1) of the GDPR as a general prohibition, 'the infringement of which does not need to be invoked individually by a person' (Rebelo & Pacheco de Andrade, 2024, p. 5).

Because banks use AI for many other processes, such as cyberthreat detection, anti-money laundering operations, and other personalised banking services, many fear that the Schufa ruling may lead to varying outcomes (Centre for Information

Policy Leadership, 2024). The Schufa ruling also has implications for other industries and sectors (Goldstein, 2023). In light of the CJEU's decision, other automated processes can also be considered automated decision-making if the criteria explained in Schufa are met.

4. Future implications

As Rebelo & Pacheco de Andrade (2024, p. 7) rightly point out, the Schufa ruling does not fully resolve the complexities of GDPR compliance in automated credit scoring. Rather, it helps us understand them and ensures a more balanced approach between using AI in banking services and ensuring proper safeguards for individual human rights and freedoms. The formula set by this landmark ruling seems straightforward: organisations and financial institutions that want to stay clear of any data protection violations must ensure meaningful human involvement in the decision-making process, especially regarding decisions that produce legal effects or significantly impact individuals. However, as organisations and institutions strive for increased efficiency, improved accuracy, and cost reduction, their over-reliance on and investment in automated processes will continue, and they must keep abreast of their legal obligations, especially regarding transparency and accountability. The Schufa ruling requires credit-scoring agencies to provide individuals with meaningful information about the logic, significance, and envisaged consequences of automated credit-scoring processes. This ensures that individuals understand and can challenge decisions significantly impacting their financial prospects. According to the logic of the Schufa ruling, this obligation cannot be delegated using any contractual provision between credit-scoring agencies and lenders, and such provisions will be unenforceable. In this case, credit-scoring agencies and lenders will be jointly accountable to individuals and must demonstrate compliance with the law and binding precedents such as the Schufa ruling.

Credit-rating agencies cannot use trade secrecy as a legitimate reason to deny a request for disclosure of the scoring methodology (Shao, 2024). This entails that both banks and credit-scoring agencies, as third parties, must adapt their contractual arrangements to comply with the GDPR and reassess and adapt the AI systems used for automated credit scoring, which should now provide for human oversight. Such contractual arrangements must provide for the clear responsibilities of each party vis-à-vis data subjects, as well as clear procedures for compliance.

Conclusions

The Schufa case attests to the growing tensions between technological developments and the need to protect individual rights. The CJEU's ruling clarifies the application of Article 22(1) of the GDPR, emphasising transparency and accountability in

automated decision-making processes. While automated systems offer efficiency and accuracy, they bring challenges, including potential biases and a lack of transparency. Meaningful human involvement in decision-making is crucial to mitigate these issues, especially when decisions have significant implications and impacts on individuals. The Schufa ruling not only reinforces GDPR-based rights but also solidifies broader ethical requirements by mandating a constant fairness assessment and insisting upon transparency by revealing individuals' right to understand the rationale behind the results of scoring. This is in line with general AI ethics guidelines that emphasise the necessity of maintaining human oversight in autonomous systems and giving individuals the capacity to comprehend and dispute decisions that impact them.

Financial institutions and credit-scoring agencies must ensure compliance with data protection regulations to prevent discrimination and uphold individual rights. As AI continues to evolve, ongoing caution and adaptation of legal frameworks will be necessary to balance innovation with ethical considerations and ensure that it does not undermine fundamental human rights.

Applied prospectively, the Schufa ruling raises many avenues for further research. A particular area of focus is how to successfully implement explainability in AI systems in the financial sector and, in so doing, ensuring that automated decisions are transparent as well as intelligible to affected parties. Equally importantly, it is imperative to study methodologies for incorporating meaningful human oversight within AI-driven decision-making systems to provide accountability and forestall over-reliance on automated systems. Examining the far-reaching consequences of the Schufa decision on other industries that employ automated decision-making can provide insight into its impact on data protection and individual rights across various fields. In addition, examining the interaction between the GDPR and new AI legislation, such as the EU AI Act, can determine how legal frameworks can be aligned to efficiently regulate AI technologies while protecting individuals' rights. By exploring these avenues, future research can play a role in the evolution of sound legal and ethical frameworks that promote trustworthy AI implementation in the financial industry and other sectors.

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