

# AI-ENHANCED FRESH STARTS: PROACTIVE FINANCIAL HEALTH CARE WITH AI AS A PERSONALIZED COACH

Nina Toivonen / Marika Salo-Lahti / Mikko Ranta / Helena Haapio

Nina Toivonen, Ph.D. researcher, Procedural and Insolvency Law, University of Helsinki, Faculty of Law| Legal Designer, City of Helsinki  
Yliopistonkatu 3, 00014 Helsingin yliopisto, FI  
nina.toivonen@helsinki.fi

Marika Salo-Lahti, Assistant Professor (tenure track), Digitalisation and Business Law, University of Vaasa, School of Accounting and Finance, Business Law  
Wolffintie 32, 65200 Vaasa, FI  
marika.salo-lahti@uwasa.fi; <https://www.uwasa.fi/en/person/1245403>

Mikko Ranta, Associate Professor (tenure track), Data Analytics in Accounting, University of Vaasa, School of Accounting and Finance, Accounting  
Wolffintie 32, 65200 Vaasa, FI  
mikko.ranta@uwasa.fi; <https://www.uwasa.fi/en/person/1492946>

Helena Haapio, Professor of Practice, University of Lapland, Faculty of Law | Associate Professor, University of Vaasa, School of Accounting and Finance, Business Law | Contract Strategist, Lexpert Ltd  
Ritarikatu 7 A 2, 00170 Helsinki, FI  
helena.haapio@lexpert.com; <http://www.uwasa.fi/en/person/1041511> | <http://www.lexpert.com>

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**Abstract:** *This paper explores how AI can be used to help individuals in financial distress to overcome debt. Using the behavioral COM-B model as a framework for designing effective interventions, we discuss how AI can help improve individuals' capabilities, opportunities and motivation to sustain better financial health, and what solutions already exist for these purposes. To demonstrate the unleashed potential of AI in debt rehabilitation we conduct an experiment with OpenAI's GPT-4, an AI model, to assess its proficiency as a personalized financial coach. While the potential of AI to support debt rehabilitation becomes evident, we also argue for the need for trustworthy technology and trust-building regulation that promotes the responsible design, implementation and use of AI in the financial sector.*

## 1. Introduction

One click, swipe, and swoosh – the package is delivered to your door. Buying goods and services in today's technology-driven markets has become easier than ever before. The ease of e-commerce, however, comes with less pleasant, but well-known side-effects. The rise of online trade, streaming, and subscription services, purchases in games and apps together with easy access, unsecured but high-interest consumer loans, also known as instant loans, have affected the increase of consumer indebtedness in the past decade [Carlsson/Larsson/Svensson/Åström 2017, 76]. According to the Finnish payment default statistics, nearly 8 % of Finnish adults had a payment default entry in 2023, and the number of persons having a payment default has been rising each year [Suomen asiakastieto Oy 2023]. Studies indicate that a common reason for payment problems, especially amongst young adults, is e-commerce related credit purchases [Autio/Wilska/Kaartinen/Lähteenmaa 2009, 413; Carlsson/Larsson/Svensson/Åström 2017, 78].

What is striking is that while technology plays a part in creating the cycles of indebtedness, its potential in supporting overcoming debt problems and maintaining financial wellbeing has remained somewhat un-

hed. Government organizations, whose duty it is to design and provide efficient and fit-for-purpose debt rehabilitation policies and services, have not yet succeeded in creating solutions that would take full advantage of today's technological possibilities. This leaves the arena of digital debt rehabilitation services open for private operators, some of which may use the struggle of indebted individuals for their own benefit. Further, current debt recovery schemes are not designed to provide support for actual behavior change in financial management. As discussed in previous research, in opposition to current debt rehabilitation models a more human-centric (or „debtor-centric“), proactive, and educational approach is needed to develop more sustainable fresh starts [Linna 2015, 41]. As much as providing a debt recovery, the rehabilitation process should be about preventing the individual from ending up into a new debt trap. There is an urgent need for different types of policy interventions and tools to promote financial wellbeing and resilience of private individuals. Individuals who go through a regulated debt recovery process, but also people who for some reason are left outside of the judicial procedures, might benefit from technological solutions, such as personalized AI tools that not only address their financial circumstances and teach how to manage credit and consumption, but also help persevere through the toughest moments of change.

The aim of this paper is to explore how AI could support the objectives of debt rehabilitation and help debtors sustain good financial health. The paper will begin with a brief introduction to the challenges in debt recovery of private individuals, and how the behavioral COM-B model can be used as a framework for designing technological interventions that help overcome them. In the third chapter we will discuss some of the already existing AI-enhanced solutions in the market and their usability for debt rehabilitation purposes. Then, in chapter four we conduct an experiment with OpenAI's GPT-4, an AI model, to assess its proficiency as a personalized financial coach. We conclude our exploration with a discussion of the main legal challenges in developing AI as a financial coach.

## **2. From Reactive Debt Adjustment to Proactive Financial Health Care**

Debt rehabilitation, also known as debt restructuring or debt relief, is a legal process aimed at helping individuals or entities manage and overcome their financial difficulties caused by excessive debt. The purpose of debt rehabilitation is to provide a structured and sustainable plan to address the debt burden, improve financial stability, and ultimately achieve a „fresh start“. Many national debt recovery models in Europe are designed around following a judicially authorized debt adjustment process that adjusts the debts according to the debtor's ability to pay [Frade 2012, 54]. The process typically consists of a debt settlement phase, drawing up a payment scheme and following it for a specific time (in Finland typically 3 to 5 years) based on the debtor's individual circumstances. However, not all debtors are legally qualified nor know how to access debt adjustment procedures, leaving many vulnerable groups such as unemployed young adults without a solution to their indebtedness [Linna 2015, 36]. Also, not all who enter debt adjustment programs become debt-free, nor learn to control their finances in a sustainable way. For example, in Finland about 40 % of individual debtors who went through the debt adjustment procedure under the Act on the Adjustment of Debts of a Private Individual (57/1993) between the years 2008 and 2013 had new payment defaults at the end of the debt adjustment process [Fredriksson 2014]. The statistics thus suggest that a successful debt rehabilitation does not happen only by cutting down the amount of unpaid debts, but by tackling the root causes of overindebtedness, as well as by learning new financial habits and managing a long-term behavior change [Demertiz/Domínguez-Jiménez/Lusardi 2020, 15].

But how does one become more financially competent? Design solutions that seek to influence human behaviour often draw from behavioural theories. According to an established COM-B model theory, any behavioural intervention, such as a debt recovery solution, should support three core elements of behavior: capability, opportunity and motivation [Michie/Atkins/West 2014, 59]. For example, if a person needs to make a payment plan, to succeed in his task he needs to have the knowledge, skills and stamina (capability), as well as time, resources and physical access to the necessary materials (opportunity) and enough interest to take such

action (motivation). Supporting capabilities in the context of debt rehabilitation means first and foremost improving debtor's financial literacy. Financial literacy is defined as the combination of knowledge, skills, attitudes and behaviors needed to make sound financial decisions that ultimately lead to financial well-being [European Commission 2020, 10]. The results of financial literacy studies show that financial knowledge and behavior are linked. They also show that there are particularly vulnerable groups of people who may need more guidance to foster their financial well-being, such as women, young adults aged 18–24, seniors, people with a low level of education and manual workers [European Commission 2023b, 1, 4, 18; OECD 2020, 64]. Digital technologies can both help consumers improve their financial literacy and also offer opportunities to make better financial decisions, which is the second element for behaviour. Technologies can, for example, make financial and related legal information and services more available and accessible, enable them to be tailored according to individual needs and knowledge levels, and make them faster and timelier [OECD 2018, 8–9]. Especially different AI solutions can be used to translate complex legal and financial data into understandable language, or to detect unfavorable terms and conditions in loan agreements. By improving debtors' opportunities to take action technology thus promotes access to justice and helps prevent future problems, which are necessary elements of proactive financial and legal health care [Haapio/Barton/Corrales Compagnucci 2021, 59–60].

The third element for behaviour, motivation, can be considered as the most challenging element to support with external interventions, yet probably the most important one. At least mere education and counseling have been shown to have little or no impact on long-term financial behaviors [Hensley 2015]. Motivation can be both reflective, like self-conscious planning and evaluation of beliefs of what kind of financial behaviour is desirable and what is not, and automatic, thus controlling debtors' impulses and reflex responses in financial decision making [Michie/Atkins/West 2014, 60]. Strong motivation also stems from the experience of self-regulation and control [Deci/ryan 2000, 4; Knittle et al 2020, 215]. Technology can provide motivational support for debtors for example in the form of applications that help set personal goals and follow them, including reminders about approaching due dates for payments or notifications for achieving important milestones. Drawing parallels with the interactive and user-centric design of prevalent fitness applications, many technological tools with integrated AI can similarly nudge individuals towards better financial health.

### **3. AI Enhanced Tools to Support Debt Rehabilitation**

The idea of using AI to support financial decision-making is not new. For example, AI-enhanced personal finance management apps, such as MoneyWiz ([www.wiz.money](http://www.wiz.money)) and Goodbudget (<https://goodbudget.com>), analyze users' spending habits, provide insights on savings and even automate their investments. Somewhat similar services are so-called robo-advisors, such as InbestMe ([www.inbestme.com](http://www.inbestme.com)) and Simplewealth ([www.simplewealth.ch](http://www.simplewealth.ch)), which use AI to make personalized investment recommendations and allocate users' assets automatically by managing their investment portfolios and even executing trades based on their risk profiles. They are automated tools that ask prospective investors questions about their specific circumstances, such as their investment experience, knowledge and financial situation, and use algorithms to recommend suitable financial instruments [ESAS 2015, 6–7]. There are some undeniable advantages to robo-advising, such as flexibility, lack of human error and poor judgment, and the ability to analyze large market data masses in a timely manner. However, there are also some challenges, such as potential errors and biases in the algorithms, cybersecurity and privacy challenges, and problems in understanding disclosures and other information in online settings and without human contact [Salo-Lahti/Ranta/Haapio 2023; Salo-Lahti 2022; Salo/Haapio 2017]. Legal design tools can help to address the latter challenge, and present information in a way that is easy to understand and act upon. For example, layering can take into account differences in financial literacy, and the information displayed can be tailored according to the needs of specific user groups.

Other applications where AI is utilized to provide financial insight include sophisticated chatbots used by banks to answer queries, provide recommendations and facilitate transactions; investment insight and prediction platforms that analyze market data and provide trend predictions; and even fully automated trading systems that use AI to fully automate trading decisions. These are all applications that help individual users enhance their financial performance. As AI is already being used in this kind of „positive“ role aimed at improving investment and choice between service providers, it could also be very helpful in the function of how to keep away from financial trouble. The approach so far has been strongly on the investment side, helping users to invest their surplus money efficiently. But there are far fewer solutions that would help users who are struggling with their personal finances.

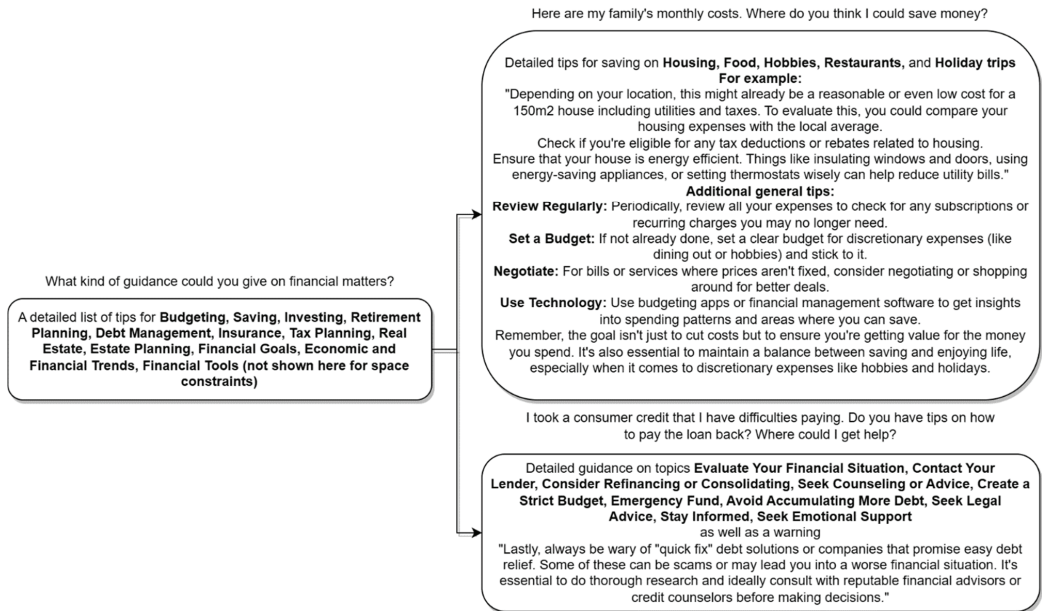
However, some solutions suitable for debt rehabilitation purposes do exist. For example, there are AI-driven platforms, such as Anyfin (<https://anyfin.com>), that help users consolidate multiple debts into a single debt with a reduced interest rate. There are also AI-driven bots, such as Tally ([www.meettally.com](http://www.meettally.com)), that help in negotiations with creditors to lower interest rates or otherwise settle debts. Furthermore, there are preventive AI-driven solutions, such as DebtBusters (<https://www.debtbusters.co.za/>), that help users improve their credit scoring, boosting their long-term debt rehabilitation, and budgeting solutions that help individuals keep track of their expenses. Finally, there are financial education sites, such as Zogo (<https://zogo.com>) and MoneyMasters (<https://moneymasters.app>), that use AI to create personalized learning paths, adapting content based on a user's current financial situation and learning progress. However, to the best of our knowledge, there are no solutions that would give comprehensive and personalized help specifically for overindebted users, thus providing a user-friendly and behaviorally informed alternative to mechanical debt adjustment processes. As organizing one's wealth for debt payments is very similar to optimizing surplus money for investments, many current solutions could be used for overcoming overindebtedness. The lack of such solutions is somewhat surprising. Nevertheless, from the perspective of overall debt rehabilitation, AI offers many possibilities, some of which we will explore in the following chapter.

#### **4. AI as a Financial Coach**

For the purposes of this paper, we experimented with OpenAI's GPT-4, an AI model, to assess its capabilities and effectiveness as a personalized financial coach for individuals experiencing debt problems. Our exploration focused specifically on AI's applicability as a companion that can improve debtors' capabilities, opportunities and motivation to change financial behaviours, equipped with a user-friendly chat interface. We tested GPT-4's ability to provide personalized and contextually relevant advice, and examined the model's adaptability with user-provided data. Our objective was to determine the model's ability to tailor its responses to typical financial situations of individual debtors.

Figure 1 illustrates the application of GPT-4 in offering financial guidance. The figure demonstrates that AI is able to provide both holistic and query-specific guidance, encompassing many types of financial inquiries and challenges. To support debtors' financial capabilities, the model explains complex concepts in understandable language and offers actionable strategies for improving skills. Also, the model seems versatile in its adaptive responses to user-specific queries to optimize debtors' expenditure. For instance, in scenarios involving cost reduction, GPT-4 renders both general strategies and itemized recommendations tailored to specific cost categories, such as housing and food, as articulated by the user. Importantly, in the context of acute credit distress, the AI model exhibits a heightened sensitivity and provides comprehensive advice that includes expenditure scrutiny, income augmentation, and negotiation strategies with lenders. It also provides guidance on emotional support, fostering a supportive environment to take action towards better financial health. These findings underscore GPT-4's potential as an instrumental resource, not only for financial counseling, but also as an empathetic ally for those in financial distress.

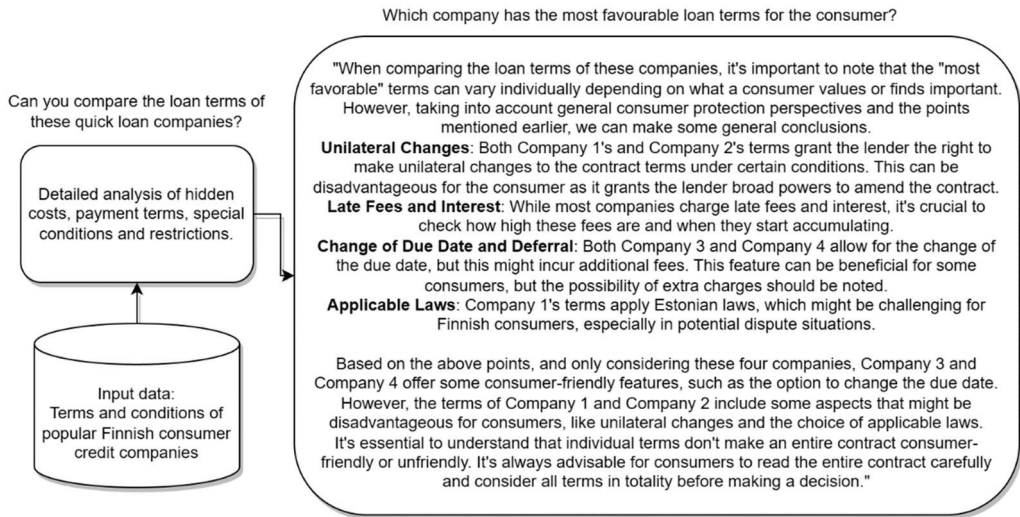
Figure 1 also illustrates the potential of advanced AI systems to foster enhanced engagement and motivation among individuals seeking better financial skills and debt resolution. We argue that integrating AI tools into the personal financial systems of individuals would not only be feasible, but could be executed with relative ease with today’s technological possibilities. In this light, Figure 1 serves as a precursor to a discourse on the pragmatic applications and consequential impacts of AI, yet warranting rigorous scholarly inquiry and empirical validation to elucidate the breadth and depth of its potential contributions to the field of debt rehabilitation.



**Figure 1: A visual representation of an interaction with OpenAI’s GPT-4 (ChatGPT September 25, 2023 version). User prompts are shown above the boxes, while synthesized summaries and quotations from the responses are contained within the boxes. The entire conversation can be viewed at <https://chat.openai.com/share/bacd49f2-222a-44ad-8ec6-edcfb6ab2275>. Licenced under CC BY-NC.**

We then extended our experiment to ascertain GPT-4’s adeptness in addressing intricate financial scenarios based on user-provided data. Figure 2 shows a pragmatic example where GPT-4 is prompted to analyze loan terms and provide insights tailored to the individual’s personal financial context. As shown in the figure, GPT-4 is able to provide a comprehensive comparative analysis that is both detailed and accessible, as well as to distill complex information into actionable insights. The latter is highlighted by AI’s responsiveness to subsequent prompts, where it articulates recommendations based on an assessment of the fairness of the terms, from the viewpoint of the user’s specified needs.

Our experiment demonstrates AI’s capacity to transcend generic advice and deliver personalized guidance attuned to individualized data inputs. As mentioned above, the integration of such a nuanced AI coaching system into existing personal finance environments emerges not as a theoretical concept, but as a tangible, implementable innovation, having the potential to augment the quality and specificity of financial counselling available to all types of users regardless of their financial skills or debt history. This amplifies the dialogue on AI’s role in financial and legal advisory, suggesting a trajectory where personalized, data-driven insights become the linchpin of individual financial planning and debt rehabilitation.



**Figure 2: A visual representation of an interaction with OpenAI’s GPT-4 (ChatGPT September 25, 2023 version) using user-provided data, namely the terms of popular Finnish quick loan companies. Company names have been removed from the image. User prompts are shown above the boxes, while synthesized summaries and quotes from the responses are contained within the boxes. The entire conversation can be viewed at <https://chat.openai.com/share/bf89f439-e9c0-4b92-a6e8-6c6907222583> (conducted in Finnish to match the language of the loan terms). Licenced under CC BY-NC.**

To summarize our findings, GPT-4 possesses advanced capabilities that are useful and applicable in the context of personalized financial coaching and debt rehabilitation. Our experiment underscores the feasibility of creating a coaching paradigm in which AI not only serves as a navigator but also as a motivator, actively participating in the user’s journey of financial skills improvement. It has a distinctive ability to foster an interactive environment, facilitating goal setting, process monitoring, and strategic guidance – elements intrinsic to sustaining personal inner motivation and progressive advancement. [Knittle et al. 2020, 2016]. Notably, at the end of our conversation referred to in Figure 1, GPT-4 encourages the user to seek emotional support, noting that „financial challenges can be stressful. Talking to someone, whether it’s friends, family, or a professional, can help you manage stress and maintain perspective“ and adding a caveat: „always be wary of ‚quick fix‘ debt solutions or companies that promise easy debt relief. Some of these can be scams or may lead you into a worse financial situation. It’s essential to do thorough research and ideally consult with reputable financial advisors or credit counselors before making decisions.“

The insights from our experiments accentuate the model’s adaptability. GPT-4’s capacity to incorporate and analyze user-specific data inputs shows its potential to transcend generic advisories, offering bespoke guidance tailored to the individual’s unique financial landscape. Such personalization augments the relevance and applicability of the recommendations, rendering them both actionable and attuned to the user’s specific financial context. Furthermore, GPT-4’s ability to distill complex financial data into easy-to-digest formats, such as comprehensive lists, not only enhances user engagement but also contributes substantively to elevating the user’s financial literacy. In essence, users are equipped with both the insights and the knowledge requisite for informed decision-making, engendering a self-reinforcing cycle of financial empowerment.

Our experiment posits AI as a pivotal asset in the evolution of debt rehabilitation, characterized by its personalized, interactive, and educational ethos, heralding a new era of empowered, informed, and autonomous financial decision-makers. GPT-4’s enhanced voice and image functionalities empower it with the capacity to

„perceive, interpret, and articulate“, rendering user interactions more fluid and intuitive. Such advancements allow individuals to engage in vocal dialogues or provide visual inputs, such as photographs of receipts, to more precisely convey their intentions or inquiries.

## 5. The Role of Regulation in Building Trustworthy Financial Coaches

As the integration of AI and finance continues to evolve, we can expect more sophisticated and effective AI solutions to be designed also for the purposes of debt rehabilitation. However, despite the rise of AI automation, humans still play the main role in the design, programming and oversight of AI applications [Baker/Dellaert 2018, 715]. Human involvement is especially needed to build trust in AI, which is a fundamental element in the context of debt rehabilitation and financial coaching. Many open-access AI tools and services are already available to anyone. Unlike specialized financial apps, GPT-4 powered AI-systems cannot currently be linked to users' bank accounts, track their spending or provide real-time financial management, and specific financial plans can only be tailored if the user shares her data in the conversation – yet sharing sensitive financial data is not recommended for privacy and security reasons. If users are providing AI with their financial data and making decisions based on its recommendations, they need to be able to trust that the system protects their privacy and is free from biases and hallucinations.

As we have argued elsewhere, building AI coaches that users can trust happens only by the support of regulation [Toivonen, Salo-Lahti, Ranta, Haapio 2023, 11]. EU legislation on AI is progressing. The new European Parliament version of the AI Act proposal includes generative AI and „foundation models“, such as GPT models. The aim of the regulation is to promote human centric and trustworthy artificial intelligence. [European Parliament 2023, 2]. Regulation, on the other hand, can also slow down the speed of AI innovations. Especially the heavy regulation of the financial sector needs to be considered. For instance, Markets in Financial Instruments Directive II 2014/65/EU (MiFID II) regulates investment services and requires service providers, such as robo-advisers, to be authorized. Such authorization requirements should be taken into account when considering the development of financial coach applications.

However, financial market legislation is not only setting barriers, but it can also enable the development of new types of applications and services. Under the Second Payment Services Directive (EU) 2015/2366 (PSD2), credit institutions must provide third party service providers access to customer accounts with the explicit consent of the customer. This makes it possible to obtain aggregated information on accounts in one or more credit institutions and get an overall view of the financial situation. The European Commission is currently stressing the importance of wider access to financial data and the promotion of open finance. Updates to the PSD2 are now proposed and the future PSD3 aims to further strengthen data sharing. The Commission has also put forward a legislative proposal for a framework for financial data access, aiming at more innovative financial products and services. [European Commission 2023a]

While excessive regulation can stifle innovation, we argue for the need for trustworthy technology and trust-building regulation that promotes the responsible design, implementation and use of new technologies. As our exploration in this paper has shown, there is a genuine need for alternative, holistic, technologically advanced solutions for debt rehabilitation that offer individuals in financial distress more than just a mechanical debt adjustment process. More authentic, user-friendly and behaviourally informed fresh starts could happen with the help of an AI-enhanced financial coach.

## 6. References

- AUTIO, MINNA/WILSKA, TERHI-ANNA/KAARTINEN, RISTO/LÄHTEENMAA, JAANA, The Use of Small Instant Loans Among Young Adults – A Gateway to a Consumer Insolvency? *International Journal of Consumer Studies*, Vol. 33, 2009, p. 407–415.
- BAKER, TOM/DELLAERT, BENEDICT G. C., Regulating Robo Advice Across the Financial Services Industry, *Iowa Law Review*, Vol. 103, 2018, p. 713–750.

- CARLSSON, HANNA/LARSSON, STEFAN/SVENSSON, LUPITA/ÅSTRÖM, FREDRIK, Consumer Credit Behavior in the Digital Context: A Bibliometric Analysis and Literature Review, *Journal of Financial Counselling and Planning*, Vol. 28, Issue 1, p. 76–94.
- DECI, EDWARD/RYAN, RICHARD, The What and Why of Goal Pursuits: Human Needs and the Self-Determination of Behavior, *Psychological Inquiry*, Vol 11, No 4, 2000, p.227–268.
- DEMERTZIS, MARIA/DOMÍNGUEZ-JIMÉNEZ, MARTA/LUSARDI, ANNAMARIA, The Financial Fragility of European Households in the Time of COVID-19, *Policy Contribution*, Vol. 15, 2020, Bruegel.
- ESAS (European Supervisory Authorities), Joint Committee Discussion Paper on Automation in Financial Advice, JC 2015 080, December 2015.
- European Commission, Financial data access and payments package, Directorate-General for Financial Stability, Financial Services and Capital Markets Union, 28 June 2023(a), [https://finance.ec.europa.eu/publications/financial-data-access-and-payments-package\\_en](https://finance.ec.europa.eu/publications/financial-data-access-and-payments-package_en) (accessed on 26 October 2023).
- European Commission, Flash Eurobarometer 525. Monitoring the level of financial literacy in the EU. July 2023(b).
- European Commission, A Capital Markets Union for people and businesses – new action plan. COM(2020) 590 final, Brussels, 24 September 2020.
- European Parliament, Artificial Intelligence Act Amendments adopted by the European Parliament on 14 June 2023 on the proposal for a regulation of the European Parliament and of the Council on laying down harmonized rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts (COM(2021)0206 – C9-0146/2021 – 2021/0106(COD)), June 2023.
- FRADE, CATARINA, Bankruptcy, Stigma and Rehabilitation. *ERA Forum*, Vol. 13, 2012, p. 45–57.
- FREDRIKSSON, SAMI, Uudet velat uhkaavat velkajärjestelyn läpikäyntiä, Tilastokeskuksen hyvinvointikatsaus 4/2014, [https://www.stat.fi/artikkelit/2014/art\\_2014-12-08\\_010.html?s=0](https://www.stat.fi/artikkelit/2014/art_2014-12-08_010.html?s=0) (accessed on 10 August 2023).
- HAAPIO, HELENA/BARTON, D, THOMAS/CORRALES COMPAGNUCCI, MARCELO, Legal design for the common good: proactive legal care by design. In Corrales Compagnucci, Marcelo/Haapio, Helena/Hagan, Margaret/Doherty, Michael (Eds.), *Legal Design. Integrating Business, Design and Legal Thinking with Technology*. Edward Elgar Publishing 2021, p. 56–81.
- HENSLEY, BILLY, Enhancing Links Between Research and Practice to Improve Consumer Financial Education and Well-Being, *Journal of Financial Counseling and Planning*, Vol. 26, Issue 1, 2015, p. 94–101.
- KNITTLE, KEEGAN/HEINO, MATTI/MARQUES, MARTA/STENIUS, MINNA/BEATTIE, MARGUERITE/EHRBRECHT, FRANZISKA/HAGGER, MARTIN/HARDEMAN, WENDY/HANKONEN, NELLI, The Compendium of Self-Enactable Techniques to Change and Self-Manage Motivation and Behaviour v.1.0. *Natural Human Behaviour*, Vol. 4, 2020, p. 215–223.
- LINNA, TUULA, Nuori velkajärjestelyssä – Fresh start vai syrjäytyminen? [Young adults in debt adjustment – Fresh start or marginalization?] *Oikeus*, Vol. 44, Issue 1, 2015, p. 26–43.
- MICHIE, SUSAN/ATKINS, LOU/WEST, ROBERT, *The Behavior Change Wheel. A Guide to Designing Interventions*, Silverback Publishing 2014.
- OECD, *OECD/INFE 2020 International Survey of Adult Financial Literacy*.
- OECD, *G20/OECD INFE Policy Guidance on Digitalisation and Financial Literacy*, 2018.
- SALO, MARIKA/HAAPIO, HELENA, Robo-Advisors and Investors: Enhancing Human-Robot Interaction through Information Design. In: Schweighofer, Erich/Kummer, Franz/Hötzendorfer, Walter/Sorge, Christoph (Eds.), *Trends and Communities of Legal Informatics. Proceedings of the 20th International Legal Informatics Symposium IRIS 2017*, Österreichische Computer Gesellschaft / books@ocg.at, Wien 2017, p. 441–448.
- SALO-LAHTI, MARIKA, Good or Bad Robots? Responsible Robo-Advising, *European Business Law Review*, Vol. 33, No. 5, 2022, p. 671–694.
- SALO-LAHTI, MARIKA/RANTA, MIKKO/HAAPIO, HELENA, AI Tools for Sustainability – Actionable Information for both Humans and Machines. In: Schweighofer, Erich/Zanol, Jakob/Eder, Stefan (Eds.), *Legal Informatics as Science of Legal Methods. Proceedings of the 26th International Legal Informatics Symposium IRIS 2023*, Editions Weblaw, Bern 2023, p. 199–209.
- SUOMEN ASIAKASTIETO OY, Payment default statistics Finland, <https://www.epressi.com/media/userfiles/123829/1688367341/asiakastiето-maksuhairiotilasto-07-2023-julkaisu.pdf> (accessed on 9 August 2023).
- TOIVONEN, NINA, SALO-LAHTI, MARIKA, RANTA, MIKKO, HAAPIO, HELENA, Beyond Debt: The Intersection of Justice, Financial Wellbeing and AI. Paper presented on 18 December 2023 at JURIX Workshop on AI and Access to Justice, December 2023 JURIX Conference on Legal Knowledge and Information Systems.