european corporate governance institute

The Digitalization of Insolvency Proceedings

Law Working Paper N° 865/2025
July 2025

Aurelio Gurrea-Martínez
Singapore Management University and ECGI

© Aurelio Gurrea-Martínez 2025. All rights reserved.
Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

This paper can be downloaded without charge from:
https://doi.org/10.67929/ecgi-law-865-2025

european corporate governance institute

ECGI Working Paper Series in Law

The Digitalization of Insolvency Proceedings

Working Paper N° 865/2025

July 2025

Aurelio Gurrea-Martínez

For valuable comments and discussions, I would like to thank Akshaya Kamalnath and Nydia Remolina. For excellent research assistance, I am very grateful to thank Samantha Loh, Lovein Sui and Xingyu Li. All errors are mine.

© Aurelio Gurrea-Martínez 2025. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Abstract

Despite the international divergences existing in the design of insolvency law, there is a common feature of insolvency proceedings that, to a greater or lesser extent, is somehow universal: insolvency proceedings are generally costly and lengthy processes. For that reason, it is not surprising that a significant body of the literature on insolvency law deals with different mechanisms to make insolvency proceedings more efficient. This article examines how technology can contribute to that goal. To that end, it starts by reviewing how countries are deploying, or can deploy, technology in different aspects and stages of insolvency proceedings and how such digitalization of insolvency proceedings can significantly reduce the costs and length of insolvency proceedings. The article also examines how Artificial Intelligence (AI) and data analytics tools can be used for many other insolvency-related purposes that range from facilitating investigations, negotiations and alternative dispute resolution mechanisms in insolvency to providing advice and enabling the early detection of financial distress. The article concludes by examining how AI is expected to change the design and practice of insolvency law as well as the challenges that need to be addressed for a successful transition towards a technology-driven insolvency system.

Keywords: insolvency law, bankruptcy law, technology, AI, digital platforms

Aurelio Gurrea-Martínez
Associate Professor of Law
Singapore Management University
55 Armenian Street
179943 Singapore, Singapore
phone: +65 680 851 60
e-mail: aureliogm@smu.edu.sg

Singapore Management University Yong Pung How School of Law
Research Paper 9/2025

The Digitalization of Insolvency Proceedings

Aurelio Gurrea-Martínez [*]

[*] Aurelio Gurrea-Martínez is an Associate Professor of Law, Lee Kong Chian Fellow and Head of the Singapore Global Restructuring Initiative at Singapore Management University. Email: aureliogm@smu.edu.sg. For valuable comments and discussions, I would like to thank Akshaya Kamalnath and Nydia Remolina. For excellent research assistance, I am very grateful to thank Samantha Loh, Lovein Sui and Xingyu Li. All errors are mine.

Abstract

Despite the international divergences existing in the design of insolvency law, there is a common feature of insolvency proceedings that, to a greater or lesser extent, is somehow universal: insolvency proceedings are generally costly and lengthy processes. For that reason, it is not surprising that a significant body of the literature on insolvency law deals with different mechanisms to make insolvency proceedings more efficient. This article examines how technology can contribute to that goal. To that end, it starts by reviewing how countries are deploying, or can deploy, technology in different aspects and stages of insolvency proceedings and how such digitalization of insolvency proceedings can significantly reduce the costs and length of insolvency proceedings. The article also examines how Artificial Intelligence (AI) and data analytics tools can be used for many other insolvency-related purposes that range from facilitating investigations, negotiations and alternative dispute resolution mechanisms in insolvency to providing advice and enabling the early detection of financial distress. The article concludes by examining how AI is expected to change the design and practice of insolvency law as well as the challenges that need to be addressed for a successful transition towards a technology-driven insolvency system.

Table of contents

1. Introduction 4

2. How technology can improve the efficiency of insolvency proceedings 5

3. The use of technology in insolvency proceedings 8

   3.1. Initiation of insolvency proceedings 8

   3.2. Appointment of insolvency practitioners 10

   3.3. Communications and voting in insolvency proceedings 11

   3.4. Sale of assets 12

   3.5. Trading of claims 15

4. The use of technology for other insolvency-related purposes 15

   4.1. Insolvency prediction 15

   4.2. Insolvency advice 16

   4.3. Investigations 16

   4.4. Alternative Dispute Resolution and insolvency 17

   4.5. Assessment of insolvency systems 17

5. Challenges and risks in the adoption of technology in insolvency proceedings 18

6. The future of insolvency law in a technology-driven world 20

7. Conclusion 21

1. Introduction

Despite the international divergences existing in the design of insolvency law, there is a common feature of insolvency proceedings that, to a greater or lesser extent, is somehow universal: insolvency proceedings are generally costly and lengthy processes. For that reason, there is a significant body of literature analyzing the desirability of insolvency proceedings and how to make them more efficient.[1] In some countries, such as the United States, the significant costs of reorganization procedures have led to many academic debates questioning the desirability of Chapter 11,[2] even arguing that it should be abolished,[3] or at least revisited.[4] Despite those criticisms, the truth is that the US Chapter 11 has proved to be an effective tool to deal with financial distress.[5] Whether the goals of Chapter 11 can be achieved in a more cost-effective manner is a separate discussion. In other jurisdictions, however, the problem is much worse: even if insolvency proceedings are also costly and lengthy processes, they do not deliver the expected outcomes.[6] Therefore, viable companies cannot achieve an effective reorganization, and creditors (particularly unsecured creditors) barely get paid anything. As a result, it is not surprising that insolvency proceedings are not generally very popular and, in fact, they are not commonly used in many jurisdictions.[7]

---

[1] For a review of the most important articles analyzing the economics of corporate insolvency law and how to make insolvency proceedings more efficient, see Jagdeep S Bhandari and Lawrence A Weiss (eds), *Corporate Bankruptcy: Economic and Legal Perspectives* (Cambridge University Press, 1996); Edward Morrison (ed), *Economics of Bankruptcy* (Edward Elgar, 2012); Barry Adler (ed), *Research Handbook on Corporate Bankruptcy Law* (Edward Elgar, 2020).

[2] Frank H. Easterbrook, 'Is corporate bankruptcy efficient?' (1990) 27(2) Journal of Financial Economics 411. For an overview of the critics of Chapter 11 and the different solutions that have been suggested to fix it, see David Skeel Jr., 'Markets, Courts, and the Brave New World of Bankruptcy Theory' (1993) Wisconsin Law Review 465.

[3] Michael Bradley and Michael Rosenzweig, 'The Untenable Case for Chapter 11' (1992) 101 Yale Law Journal 1043 (1992).

[4] See, e.g., Douglas G Baird, 'The Uneasy Case for Corporate Reorganizations' (1986) 15 The Journal of Legal Studies 127; Robert K Rasmussen, 'Debtor's Choice: A Menu Approach To Corporate Bankruptcy' (1992) 71 Texas Law Review 51; Alan Schwartz, 'A Contract Theory Approach to Business Insolvency' (1998) 107 The Yale Law Journal 1807, 1808.

[5] In fact, the relative success of the US Chapter 11 can help explain, at least in part, why many countries around the world are adopting provisions from the US Chapter 11, such as a cross-class cramdown, restrictions on the enforcement of ipso facto clauses, a debtor-in-possession ("DIP") model for the governance of insolvency proceedings, and DIP financing provisions. Analyzing the adoption of these tools in the European Union, the United Kingdom and Singapore, see Aurelio Gurrea-Martínez, 'The Future of Reorganization Procedures in the Era of Pre-Insolvency Law' (2020) 21(4) European Business Organization Law Review 829.

[6] This problem is particularly prevalent in emerging markets and developing economies. Yet, it can also be found in many advanced economies. See Aurelio Gurrea-Martínez, *Reinventing Insolvency Law in Emerging Economie*s (Cambridge University Press, 2024) 275-296.

[7] For example, despite the size of its economy, Mexico only reported an average of 40 insolvency proceedings per year between 2000 and 2020 and similar figures were observed in the context of reorganization procedures in Thailand in 2018. Smaller countries, such as Ecuador, reported a total of 27 reorganisations between 1997-2020. See Aurelio Gurrea-Martínez, *Reinventing Insolvency Law in Emerging Economie*s (Cambridge University Press, 2024) 288-289. For a pioneering study analyzing the relative use of insolvency proceedings around the world, see Stijn Claessens and Leora F. Klapper, 'Bankruptcy around the world: explanation of its relative use' (2005) 7 American Law and Economics Review 253.

This article examines the potential of technology to tackle one of the most important problems that has been concerning regulators and insolvency scholars for decades, that is, how to make insolvency proceedings more efficient. To that end, it analyzes how countries around the world are deploying, or can deploy, technology in different aspects and stages of insolvency proceedings: from the initiation and management of cases to the use of digital platforms for the purpose of facilitating communications, voting, the sale of assets or the trading of claims. By doing so, it will be shown how technology can significantly reduce the costs and length of insolvency proceedings. Additionally, it will be argued that the digitalization of insolvency proceedings can help address, in a more effective manner, many of the costs and challenges traditionally existing in insolvency proceedings, such as asymmetries of information, collective action problems, and passive behavior of many creditors – especially in the context of micro and small enterprises. Moreover, it can contribute to the efficient allocation of the debtor's assets. Therefore, technology can become a powerful ally to increase the efficiency of insolvency proceedings. The impact of technologies on the insolvency profession goes far beyond insolvency proceedings, though. Namely, it will be shown that AI and data analytics tools can be used for many other insolvency-related purposes that range from facilitating investigations, negotiations and alternative dispute resolution mechanisms in insolvency to providing advice and enabling the early detection of financial distress. This article concludes by examining how AI is expected to change the design and practice of insolvency law as well as the challenges that need to be addressed for a successful transition towards a technology-driven insolvency system.

2. How technology can improve the efficiency of insolvency proceedings

Insolvency proceedings are generally very costly processes.[8] On the one hand, they generate significant *direct* costs. These costs include professional fees charged by lawyers, financial advisors and other actors potentially involved in an insolvency proceeding (e.g., insolvency practitioners or 'IPs' in charge of managing or supervising the procedure), and any other cost arising from the procedure (e.g., application fees, publication expenses, etc.). In one of the early studies conducted in this area, it was shown that the direct costs of insolvency proceedings in the United States represent 3-4% of the pre-bankruptcy market value of total assets.[9] Another study found that these costs represent about 7.5% of the value of the firm,[10] and subsequent studies

[8] For a summary of the literature on the costs of insolvency proceedings, see *e.g.*, Ben Branch, 'The Costs of Bankruptcy: A Review' (2002) 11(1) International Review of Financial Analysis 39; Edward Altman, Edith Hotchkiss and Wei Wang, *Corporate Financial Distress, Restructuring and Bankruptcy* (Wiley, 2019) 72-77.
[9] See Jerold B. Warner, 'Bankruptcy costs: some evidence' (1977) 32(2) Journal of Finance 337.
[10] Edward Altman, 'A further empirical investigation of the bankruptcy cost question' (1984) 39 Journal of Finance 1067.

investigating the direct costs of insolvency proceedings in the United Kingdom and the United States showed that those figures can be even higher.[11] Moreover, the fees charged by insolvency professionals seem to have increased significantly in the past decades, at least in the United States. Namely, in a recent study conducted by Professor Jared Ellias, it has been shown that Chapter 11 fees consumed four times as much of a debtor's pre-bankruptcy assets in 2022 than in the 2010s.[12] Moreover, pre-bankruptcy legal expenses –including workouts, out-of-court restructuring, and bankruptcy preparation– increased by 89% from the 2000s to the late 2010s.[13] Therefore, apart from the high direct costs associated with the initiation of insolvency proceedings, it seems that those costs and particularly the fees charged by insolvency professionals advising distressed firms have significantly increased overtime.

On the other hand, a situation of insolvency leads to significant *indirect* costs regardless of whether a company eventually initiates a formal insolvency proceeding. These latter costs include any destruction of value generated by a situation of financial distress, such as the loss of reputation, goodwill, employees, lenders, consumers and suppliers.[14] According to some studies, the costs of financial distress represent 10 to 20% of the market value of the firm.[15] Therefore, the fact that a company becomes financially distressed already leads to a significant loss of value.

In the context of some businesses, and particularly micro and small enterprises (MSEs), the costs of insolvency proceedings often act as a barrier for the usage of the insolvency system.[16] In other words, initiating an insolvency proceeding becomes a luxury that many MSEs cannot even afford.[17] In other situations, firms may be able to afford the insolvency process. Yet, due to the inefficiency of many insolvency systems, initiating an insolvency proceeding might not be worth it: the expected costs of the procedure exceed its potential benefits. Given such unattractive

---

[11] In the United Kingdom, see *e.g.,* Julian Franks, Oren Sussman, 'Financial Distress and Bank Restructuring of Small to Medium Size UK Companies' (2005) 9(1) Review of Finance 65; John Armour, Audrey Hsu and Adrian Walters, 'Corporate Insolvency in the United Kingdom' (2008) 5(2) European Company and Financial Law Review 148. In the United States, see *e.g.,* Arturo Bris, Ivo Welch and Ning Zhu, 'The Costs of Bankruptcy' (2006) 61 Journal of Finance 1253.

[12] Jared A. Ellias, 'Has Chapter 11 Become More Expensive?' Yale Journal on Regulation (Forthcoming) <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5128371> accessed 28 February 2025.

[13] Ibid.

[14] For an analysis of the different indirect costs generated by a situation of financial distress, see *e.g*. Jonathan Berk and Peter DeMarzo, *Corporate Finance* (Pearson, 2011) 514-516.

[15] See Gregor Andrade, Steven Kaplan, 'How Costly Is Financial (Not Economic) Distress? Evidence from Highly Leveraged Transactions That Became Distressed' (1998) 53 Journal of Finance 1443.

[16] Edward R Morrison and Andrea C Saavedra, 'Bankruptcy's Role in the COVID-19 Crisis' (2020) Columbia Law and Economics Working Paper 624, 6–7, <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3567127> accessed 3 February 2023.

[17] Aurelio Gurrea-Martínez, 'Implementing an Insolvency Framework for Micro and Small Firms' (2021) S30 International Insolvency Review 46, 49.

scenario sadly found in many jurisdictions around the world and particularly in emerging markets and developing economies, debtors (and creditors) are rationally reluctant to use the insolvency system. And when they finally do so, it is generally too late: the value of the assets has been dissipated, ultimately reducing the recoveries for creditors and the likelihood of saving a business that, at the onset of the situation of insolvency, could have been economically viable.

Thus, while many factors, including cultural, historical and sociological reasons, contribute to the stigma of insolvency, the unattractiveness of insolvency proceedings also plays a key role in explaining the reluctance of debtors and creditors to the usage of the insolvency system.[18] After all, not only is the procedure costly but, perhaps more importantly, the initiation of an insolvency proceeding does not even achieve its intended purposes – that is, the effective reorganization of viable but financially distressed firms and the maximization of the returns to creditors. To make things worse, many insolvency proceedings are not attractive to the actors in charge of deciding whether, and if so when, an insolvency proceeding should be initiated – typically the directors and/or (controlling) shareholders of the company. In many jurisdictions, the directors are replaced by an IP that may not have expertise in the debtor's business.[19] In other jurisdictions, the shareholders are wiped out once a company initiates a formal insolvency proceeding.[20] Finally, in many countries, directors can be exposed to a liability regime that might not exist outside of bankruptcy.[21] Therefore, it is not surprising that directors and shareholders often avoid or at least postpone the usage of the insolvency system.

As a result, adopting legal and institutional reforms that can improve the attractiveness of insolvency proceedings for debtors and creditors is often the first step to be taken by countries seeking to tackle the stigma and bad reputation of insolvency proceedings. In that context, technology can play a key role. The following section explains how technology is being deployed, or can be deployed, in different aspects and stages of insolvency proceedings. It also discusses how technology can be used for other insolvency-related purposes.

[18] Aurelio Gurrea-Martínez, *Reinventing Insolvency Law in Emerging Economie*s (Cambridge University Press, 2024) 285-290.
[19] The replacement of the debtor's management team by an external administrator or judicial manager is typically observed in the administration-style proceeding existing in most commonwealth jurisdictions.
[20] This outcome can be observed in the US Chapter 11.
[21] Aurelio Gurrea-Martínez, *Reinventing Insolvency Law in Emerging Economie*s (Cambridge University Press, 2024) 282.

3. The use of technology in insolvency proceedings

3.1. Initiation of insolvency proceedings

In many countries, the initiation of insolvency proceedings can be a costly and delayed exercise.[22] Instead of allowing the automatic initiation of the process upon the debtor's petition, as happens in countries like the United States, companies seeking to obtain bankruptcy protection often need to fulfil certain conditions that need to be verified by a court.[23] If the purpose of requiring such *ex ante* control is preventing opportunistic behavior from the debtor (even if the costs of bankruptcy already act as a deterrence for such opportunistic behavior), there are more efficient mechanisms to tackle this problem. For example, courts might be allowed to terminate the procedure *ex post*,[24] even imposing some form of sanctions or liability for damages to those who have opportunistically used the insolvency process. Alternatively, the creditors can also be allowed to terminate a reorganization procedure if certain requirements are met.[25] In any case, regardless of the policy option eventually chosen, the use of technology can serve as a powerful tool to reduce the costs and delays associated with the initiation of insolvency proceedings, especially in countries embracing a system of *ex ante* control.

Countries can achieve that goal by facilitating a system for the electronic filing (*e-filing*) of insolvency proceedings. This should include the provision of standardized forms that debtors and creditors would submit along with their voluntary and involuntary petitions, respectively.[26] Some of these solutions can already be observed in some jurisdictions. For instance, in the United Kingdom and the United States, debtors are allowed to file the petition electronically. In Spain, microenterprises have access to a simplified insolvency process that, among other features, is

[22] For instance, in India, even though the court should decide on the admission of the insolvency case within 14 days, the average number of days generally taken for the admission of a petition filed by a corporate debtor is 133 days. See Neeti Shikha and Urvashi Shahi, 'Assessment of Corporate Insolvency and Resolution Timeline' (2021) Insolvency and Bankruptcy Board of India RP-01/2021, 13 <https://ibbi.gov.in/uploads/publication/2021-02-12-154823-p3xwo-8b78d9548a60a756e4c71d49368def03.pdf> accessed February 25, 2023. In involuntary petitions, even though the insolvency legislation provides a time limit of 14 days for admitting or rejecting an insolvency petition filed by operational creditors, it was found that the average time taken to make this decision was 468 days in 2020–2021, and 650 days in 2021–2022. See Insolvency and Bankruptcy Board of India, 'Consultation Paper on Issues Related to Reducing Delays in the Corporate Insolvency Resolution Process' (April 13, 2022) Insolvency and Bankruptcy Board of India, 1 <https://ibbi.gov.in/uploads/whatsnew/72a560ce5697bbaeef62ce5893a3f1ad.pdf> accessed February 25, 2023.

[23] These conditions often include showing a situation of insolvency (or likelihood of insolvency), apart from other formal requirements. For an overview of the conditions generally required for the initiation of insolvency proceedings around the world, see Aurelio Gurrea-Martínez, *Reinventing Insolvency Law in Emerging Economies* (Cambridge University Press, 2024) 54-121.

[24] The dismissal of the case is the solution adopted in the United States.

[25] This proposal has been suggested in the context of emerging economies. See Aurelio Gurrea-Martínez, *Reinventing Insolvency Law in Emerging Economies* (Cambridge University Press, 2024) 209-212.

[26] Ibid.

entirely managed electronically and provides debtors and creditors with a variety of standardized forms that cover most aspects of the procedure.[27]

Colombia goes even further. Namely, the entity in charge of managing insolvency proceedings – the Superintendence of Companies – decided to adopt an electronic platform empowered by AI that facilitates the automated submission and preliminary assessment of insolvency petitions submitted by the debtor.[28] Under the so-called "Insolvency Module", or simply "MI" (for its acronym in Spanish), the AI-powered system adopted in Colombia allows the authentication of user through biometric tools.[29] Moreover, it provides online access to information in a user-friendly format and also helps monitor insolvency proceedings by users and practitioners.[30] Additionally, the platform facilitates the electronic submission of documents.[31] Once the submissions are made through the system, an AI tool reviews them against a public database to determine whether they are complete.[32] Such assessment is then translated into the court's decision about admitting the case into the formal insolvency process. If the system determines that the information submitted is incomplete, it can also generate drafts to request further information that can then be verified and signed by judges before it is sent out.[33]

In 2021, the average time taken for the assessment and admission of an insolvency petition in Colombia was 5 months.[34] After the implementation of this innovative AI-powered system, that period was reduced to 10 days or 45 days, depending on whether the information submitted by the debtor was complete or not.[35] Therefore, the Colombian experience with MI clearly shows how technology can reduce the time associated with the initiation of insolvency proceedings, at least in countries where debtors cannot immediately get bankruptcy protection upon the filing. By doing so, it becomes a valuable mechanism to minimize the loss of value experienced by

[27] For an analysis of the innovative insolvency procedure for microenterprises adopted in Spain, see Ignacio Tirado, 'Corporate Restructuring Laws Under Stress: The Case of Spain' (2023) 9(2) *European Business Organization Law Review* 283, 330-333.
[28] Nicolas Polania, 'Colombia is Using AI to Improve Insolvency Proceedings' (2022) <https://www.lexology.com/library/detail.aspx?g=833800ef-65d9-42e0-89ab-d4436d0468d8> accessed 17 February 2025.
[29] Ibid.
[30] Ibid.
[31] Ibid.
[32] Akshaya Kamalnath, 'The Future of Corporate Insolvency Law: A Review of Technology and AI-powered Changes (2024) 33(1) International Insolvency Review 40, 46-48.
[33] Ibid.
[34] Aurelio Gurrea-Martínez, Susana Hidvegi-Arango, and Paúl Noboa-Velasco, 'El impacto de las nuevas tecnologías en el Derecho concursal' in Aurelio Gurrea-Martínez and Adolfo Rouillon (eds), *Derecho de la insolvencia: Un enfoque comparado y funcional* (Madrid: Bosch, 2022) 392.
[35] Ibid.

financially distressed companies not yet subject to a formal insolvency proceeding, contributing to the maximization of the returns to creditors and the reorganization of viable but insolvent firms.

Technology can also be used for other functions associated with the initiation of insolvency proceedings. For example, in the context of insolvency petitions initiated by creditors, apart from facilitating the submission of the petition and supporting materials digitally, any potential dispute arising from the petition (e.g., opposition from the debtor) could be managed virtually. Similarly, any *ex post* motion to terminate an insolvency proceeding (in countries with such a system for the dismissal of the case, as happens in the United States) could be handled in a similar manner. As the COVID-19 pandemic showed, many hearings can be held virtually. Therefore, apart from reducing the length and costs of insolvency proceedings by implementing a system of e-filings complemented with standardized forms, the use of technology can also facilitate the resolution of any disputes potentially arising from an insolvency petition.

3.2. Appointment of insolvency practitioners

In most countries around the world, an IP is appointed for the purpose of managing or supervising an insolvency proceeding.[36] One of the problems that this governance model of insolvency proceedings raises has to do with the appointment of the IP. If the IP is appointed by debtors or creditors, one of the concerns is that the IP may have incentives to favor the actor appointing them at the expense of other stakeholders. If the IP is appointed by courts, this system may also suffer from other weaknesses, such as the appointment of an IP who might not be the most qualified candidate for a particular case, as well as problems of corruption in certain countries.[37]

To solve some of the problems associated with the appointment of IPs, various countries around the world have come up with different solutions that often rely on the use of technology and particularly AI. Examples of these technologically empowered solutions can be found in countries like Colombia[38] and Lithuania.[39] In both jurisdictions, the IP is appointed by an algorithm that is fed with information about the qualification and expertise of the pool of registered IPs.[40] Then, the

[36] An exception can be found in the US Chapter 11, where an examiner or a trustee can only be appointed in certain cases. In many hybrid procedures, such as the scheme of arrangement, the absence of an IP managing or supervising the procedure is also the most common rule.
[37] For an analysis of the different models for the governance of insolvency proceedings and the different systems for the appointment of IPs in countries where such actors are appointed, see Aurelio Gurrea-Martínez, *Reinventing Insolvency Law in Emerging Economies* (Cambridge University Press, 2024) 213-225.
[38] Ibid, pp. 223-224.
[39] See Frank Heemann and Karolina Grityte, 'Lottery and Liability: Recent Developments in Lithuanian Bankruptcy Law' (INSOL Europe 2015) <https://www.insol-europe.org/download/documents/746> accessed 17 February 2025.
[40] Ibid. See also *supra* note 38.

algorithm is supposed to select the most suitable candidate, depending on the particular nature of the proceeding and the features and sector of the insolvent firm.

An algorithmic-led model for the appointment of IPs, however, is far from perfect. Therefore, if not complemented with other measures, such as the empowerment of creditors for the removal of the IP appointed by the algorithm and the possibility of appointing a new IP, this system for the appointment of IPs can also lead to suboptimal outcomes. Still, it provides an innovative solution that could be explored in countries with court-appointed IPs that suffer from certain institutional weaknesses and yet do not consider moving towards other models for the appointment and removal of IPs led by debtors and creditors.[41]

3.3. Communications and voting in insolvency proceedings

The use of technology has changed how individuals and firms operate. In corporate law, it was not that long ago when most jurisdictions around the world used to require (as some jurisdictions still do) that the shareholders' meeting had to be held in person, and that the call for the shareholders' meeting as well as the items to be discussed in the meeting had to be announced in a physical newspaper from the location of the company's registered office. In the judiciary, something similar has been observed: traditionally, any interaction with the courts had to be exclusively in person. In recent years, however, and especially after the COVID-19 pandemic, everything has changed: in many countries, shareholders' meetings can be held online and courts are increasingly allowing online hearings and the use of electronic platforms for the submissions of documents.

In insolvency law, we have also observed similar developments. For example, from the notifications sent to creditors to the proof of claims that creditors need to file during the process, the use of electronic communications in insolvency proceedings is becoming more popular.[42] Despite these developments, more can be done. For instance, the use of electronic platforms should be promoted for the purpose of facilitating creditors' meetings and voting.[43] This would

[41] Aurelio Gurrea-Martínez, *Reinventing Insolvency Law in Emerging Economies* (Cambridge University Press, 2024) 224.

[42] For example, in Singapore, see Ministry of Law, 'Insolvency Office e-Services' https://eservices.mlaw.gov.sg/ipto/forms/io/io-home.form accessed 17 February 2025. In Australia, see Australian Financial Security Authority, 'How Do I Lodge an Online Proof of Debt Form?' https://www.afsa.gov.au/owed-money/how-do-i-lodge-online-proof-debt-form accessed 17 February 2025.

[43] Aurelio Gurrea-Martinez, *Reinventing Insolvency Law in Emerging Economies* (Cambridge University Press, 2024) 246. See also Aurelio Gurrea-Martinez, 'Guide on the Treatment of Insolvent Micro and Small Enterprises in Asia' (2022) International Insolvency Institute and Asian Business Law Institute < https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4104925> accessed 17 February 2025.

reduce the costs associated with the involvement of creditors in insolvency proceedings. Therefore, it can empower creditors while simultaneously reducing some of the costs and challenges traditionally existing in insolvency proceedings, such as asymmetries of information, collective action problems, and the passive behaviour of certain creditors – especially in the context of MSEs. Additionally, as has been observed in countries like Finland and Colombia,[44] the creation of a digital platform can serve as another mechanism to facilitate communications and the exchange of information between debtors and creditors in insolvency proceedings.[45] Moreover, such platforms can also reduce costs related to production and storage of files.[46]

3.4. Sale of assets

Whether it is through a reorganization, a piecemeal liquidation or a going concern sale, one of the goals of an efficient insolvency system is making sure that the debtor's assets are put to their best use.[47] Unfortunately, the existence of a variety of market failures, including asymmetries of information, collective action problems and the illiquidity existing in certain countries or industries, often prevent the efficient allocation of the debtor's assets. To address those problems, the use of electronic platforms for the sale of assets can play a key role.

Ideally, such electronic platform should promote any solution of the insolvency process – that is, reorganization, going concern sale or piecemeal liquidation. Therefore, it can be designed as an *auction* where different actors (including the existing shareholders/managers) would be allowed to submit bids for the company's assets.[48] These bids can include cash and non-cash offers.[49] Therefore, they could potentially include reorganization plans.[50] Then, the creditors would decide how to allocate the debtor's assets.[51] Therefore, in practice, such a system of auctions can result

[44] Akshaya Kamalnath, 'The Future of Corporate Insolvency Law: A Review of Technology and AI-powered Changes (2024) 33(1) International Insolvency Review 40, 46-48.
[45] Catarina Frade, Paula Fernando and Ana Filipa Conceiçao, 'The performance of the courts in the digital era: The case of insolvency and restructuring proceedings' (2020) 29 International Insolvency Review 346, 351; Robert Peldan, 'Finnish Bankruptcy Act 2.0' Eurofenix (Autumn, 2019) 29; Klaus Majamaki, 'New statute amends Bankruptcy Act' (Lexology, 16 August 2019), 29, https://www.lexology.com/commentary/insolvency-restructuring/finland/hpp-attorneys-ltd/new-statute-amends-bankruptcy-act.
[46] Ibid.
[47] Douglas G. Baird, 'Bankruptcy's Uncontested Axioms' (1998) 108 The Yale Law Journal 573, 582; Robert Rasmussen and David A Skeel Jr, 'The Economic Analysis of Corporate Bankruptcy Law' (1995) 3 American Bankruptcy Institute Law Review 85, 86.
[48] Aurelio Gurrea-Martínez, 'Implementing an Insolvency Framework for Micro and Small Firms' (2021) S30 International Insolvency Review 46, S54-55. See also Aurelio Gurrea-Martinez, *Reinventing Insolvency Law in Emerging Economies* (Cambridge University Press, 2024) 194-202.
[49] Ibid
[50] Ibid
[51] Ibid

in a reorganization plan, a going concern sale or a piecemeal liquidation. However, it would do so providing a single-entry insolvency process that, unlike what is observed in many jurisdictions, does not have a bias towards reorganization or liquidation.

The replacement of reorganization and liquidation procedures with such a single-entry insolvency process based on auctions has gained considerable support in the academic literature.[52] In countries somehow embracing a system of bankruptcy auctions, such a mechanism has proven to be an effective tool to preserve businesses while maximizing the returns to creditors.[53] Yet, most jurisdictions do not embrace a system of auctions for the purpose of deciding the "bankruptcy outcome". Instead, countries embracing the use of auctions in insolvency are generally doing so for the exclusive purpose of facilitating the sale of assets in liquidation procedures. Even within that context, however, auctions can significantly contribute to the efficiency of insolvency proceedings. Namely, if the auction is conducted through a public, transparent and international platform, it may expand the number of potential bidders interested in the company's assets and the price obtained for those assets. Therefore, it can ultimately increase the proceeds generated by the sale of assets and therefore the returns received by creditors.[54]

The use of auctions for the sale of assets in insolvency proceedings is becoming more and more popular internationally. For instance, in China, unless the creditors' meeting decides otherwise, the debtor's property shall be sold off by means of a network auction.[55] In India, the use of auctions for the sale of assets was already recognized since 2016.[56] More recently, however, the Insolvency and Bankruptcy Board of India ("IBBI") launched a centralized e-auction site: eBKray.[57] Under that system, insolvency professionals need to list all assets of companies undergoing

[52] See, *e.g.,* Philippe Aghion, Oliver Hart and John Moore, 'The Economics of Bankruptcy Reform' (1993) 8(3) Journal of Law, Economics and Organization 523; Douglas Baird, 'Revisiting Auctions in Chapter 11' (1992) 36 The Journal of Law & Economics 633; Oliver Hart, Rafael La Porta, Florencio Lopez-de-Silanes and John Moore, 'Proposal for a New Bankruptcy Procedure in Emerging Markets', in Richard Levich (ed), *Emerging Capital Flows* (Kluwer 1988), 401–419.
[53] B Espen Eckbo and Karin Thorburn, 'Bankruptcy as an Auction Process: Lessons from Sweden' (2009) 21(3) Journal of Applied Corporate Finance 38.
[54] Some of these advantages have been recognized by the Insolvency and Bankruptcy Board of India in a circular announcing the launch of an electronic platform for the sale of assets in liquidation procedures. See Insolvency and Bankruptcy Board of India Circular, 29 October 2024 <https://ibbi.gov.in/uploads/legalframwork/77e7f6034a0c4dab174712fbf00920a6.pdf> accessed February 17, 2025.
[55] See Notice of Guangzhou Intermediate People's Court on Printing and Distributing the Measures for the Implementation of Property Disposal in Bankruptcy Proceedings (for Trial Implementation) (February 25, 2020) Guangzhou Intermediate People's Court <www.gz.gov.cn/attachment/0/96/96873/6459223.pdf> accessed February 17, 2025.
[56] See Insolvency and Bankruptcy Board of India (Liquidation Process) Regulations 2016, Schedule I, s 1(7) <https://ibbi.gov.in/uploads/legalframwork/b37ac2f0201e2e3c41cfa3d989f58f4d.pdf> accessed February 25, 2023.
[57] See Insolvency and Bankruptcy Board of India Circular, 29 October 2024 <https://ibbi.gov.in/uploads/legalframwork/77e7f6034a0c4dab174712fbf00920a6.pdf> accessed February 17, 2025.

liquidation on the centralized listing platform.[58] This centralized platform offers detailed information on corporate debtor assets, including photographs, videos, and geographical coordinates.[59] With effect from 1 April 2025, all IPs handling liquidation processes have been directed to exclusively use the eBKray auction platform for conducting auctions for the sale of assets.[60]

In Spain, a system of online auctions is currently used for the sale of assets as part of the new simplified procedure for microenterprises.[61] Additionally, many private actors operate as 'specialized agencies' facilitating the sale of distressed assets by advertising them through online portals.[62] In Italy, the Ministry of Justice has created a portal that, among other aspects, facilitates the advertisement and sale of assets of distressed companies.[63] Greece, Portugal and Croatia have also implemented a system of electronic auctions for the sale of assets in insolvency proceedings.[64] Thus, while the use of electronic auctions for the sale of assets is becoming more popular internationally, many European countries seem to have taken the lead in this space. In fact, the adoption of an electronic auction system for the sale of the assets in simplified liquidation procedures was included in the European proposal that seeks to harmonize certain aspects of insolvency law released in 2022.[65] If such proposal is approved, the use of electronic auctions for the sale of assets would be required for all EU members, at least in the context of simplified liquidation procedures.[66]

---

[58] Ibid.

[59] Ibid.

[60] Insolvency and Bankruptcy Board of India Circular, 10 January 2025 <https://ibbi.gov.in/uploads/legalframwork/43ec517d68b6edd3015b3edc9a11367b.pdf> accessed February 17, 2025.

[61] Recast Insolvency Act 2020, Art. 708.3. Analyzing how this auction system for the sale of assets works, see Ignacio Tirado, 'Corporate Restructuring Laws Under Stress: The Case of Spain' (2023) 9(2) European Business Organization Law Review 283, 330-333.

[62] Through these online portals, those specialized agencies advertise assets from insolvent companies and facilitate the connection and exchange of information between buyers and sellers.

[63] Agenda Digitale, 'Portale Vendite Pubbliche Giudiziarie: Che Pasticcio la Giustizia Digitale! Come Rimediare' (Cittadinanza digitale, 19 July 2018) <https://www.agendadigitale.eu/cittadinanza-digitale/portale-vendite-pubbliche-giudiziarie-che-pasticcio-la-giustizia-digitale-come-rimediare/ accessed 17 February 2025.

[64] In Greece, see Watson, Farley and Williams, 'New Greek Insolvency Law' (30 October 2020) <https://www.wfw.com/articles/new-greek-insolvency-law/> accessed 17 February 2025. In Portugal, see Catarina Frade, Paula Fernando and Ana Filipa Conceiçao, 'The performance of the courts in the digital era: The case of insolvency and restructuring proceedings' (2020) 29 International Insolvency Review 346, 351. In Croatia, see Cvijeta Gavric, Petra Majher Lončar, 'Digitalisation in insolvency proceedings' (2023) Schonherr https://www.schoenherr.eu/content/digitalisation-in-insolvency-proceedings/ accessed 17 February 2025.

[65] The text of the proposal can be found at https://eur-lex.europa.eu/resource.html?uri=cellar:8adadc6c-76e9-11ed-9887-01aa75ed71a1.0001.02/DOC_1&format=PDF. See arts. 50-54.

[66] It should be noted, however, that, in a subsequent text published by the European Union, the rules governing the simplified liquidation procedures (along with those regulating pre-packs and creditors' committees) have been excluded. See https://data.consilium.europa.eu/doc/document/ST-16283-2024-INIT/en/pdf Therefore, it remains to be see whether those rules will be excluded from the final text, or the omission in the most updated text just obeys to the

3.5. Trading of claims

Electronic platforms can also be used for the purpose of facilitating the purchase and sale of claims in insolvency proceedings.[67] If such goal is achieved, this solution would provide an exit, and therefore liquidity, to many creditors who might not be interested in being part of a costly and lengthy process that may result in a low recovery rate for them. Additionally, if the buyers of those claims are sophisticated actors with the resources, incentives and expertise to be actively involved in insolvency proceedings, as usually happens with hedge funds, facilitating the trading of claims can increase the efficiency of insolvency proceedings by speeding up the process while reducing collective action problems, asymmetries of information and the potential opportunism of debtors.[68]

4. The use of technology for other insolvency-related purposes

4.1. Insolvency prediction

The impact of technologies on the insolvency profession goes far beyond insolvency proceedings. For example, AI can be used for insolvency prediction.[69] Insolvency prediction tools have traditionally assisted creditors in assessing the risks of extending credit to specific companies.[70] These same tools may be leveraged by debtors to perform self-analysis of its financial capacity to prevent insolvency.[71] While the Altman Z-score has long served as a benchmark for predicting the likelihood of insolvency based on the company's assets and working capital, newer AI-based techniques like artificial neural networks can lead to more comprehensive and accurate

need to have more time to negotiate those aspects that may represent more important innovations in insolvency law, such as the adoption of a simplified liquidation procedure based on a system of auctions.

[67] In fact, certain platforms are also being used to facilitate this type of transactions. For example, in Singapore, the technology-driven marketplace 363Xchange facilitate the purchase and sale of "bonds and insolvency claims", among other deals. See <https://363xchange.com/> accessed 19 February 2025.

[68] Analyzing the trading of claims and the presence of hedge funds in reorganization procedures, see Jiang Wei, 'Hedge Funds and Chapter 11' (2012) 63(2) The Journal of Finance 513; Jared A. Ellias, 'Bankruptcy Claims Trading' (2018) 15 Journal of Empirical Legal Studies 772.

[69] Harry Lawless, 'Insolvency Prediction Techniques for Debtors' (2024) 8 Journal of Business Law 648; Felix Steffek, 'A Story of Two Holy Grails: How Artificial Intelligence Will Change the Design and Use of Corporate Insolvency Law' (2024) University of Chicago Review Online <https://lawreview.uchicago.edu/online-archive/story-two-holy-grails-how-artificial-intelligence-will-change-design-and-use> accessed 17 February 2025.

[70] Jane Colston, 'The Role of Artificial Intelligence (AI) and Technology in Global Insolvency' (INSOL International, 2019) <https://briefings.brownrudnick.com/post/102jmqu/insol-international-the-role-of-artificial-intelligence-ai-and-technology-in-g accessed 17 February 2025; Joanna Goodman, 'Artificial Intelligence in insolvency work: Transforming critical care' (2018) INSOL Europe (Autumn 2018) <https://www.insol-europe.org/download/documents/1536> accessed 17 February 2025.

[71] Harry Lawless, 'Insolvency Prediction Techniques for Debtors' (2024) 8 Journal of Business Law 648.

assessments.[72] Similarly, AI could be used to anticipate court decisions.[73] Therefore, it can ultimately serve as a valuable mechanism to promote predictability and a more informed decision-making process.

4.2. Insolvency advice

AI-powered chatbot technology can be employed by public agencies to provide initial advice to businesses.[74] Such tools can become particularly helpful to MSEs given their usually limited resources.[75] If the chatbot is trained on historical data and the ability to recognize patterns, it could forecast the path to provide strategies to mitigate financial distress.[76] For example, it can serve as an initial filter to decide whether a firm should be reorganized or liquidated, saving the time and costs associated with embarking on a restructuring effort when a company is not economically viable or, for any other reason (e.g., lack of support from the creditors), the approval of a reorganization plan is very unlikely. AI-powered chatbots can also guide MSEs through the complexities of the insolvency process. Such guidance, along with the use of standardized forms and templates, could significantly reduce the costs of insolvency proceedings for MSEs.

In the context of insolvency professionals, AI and data analytics tools can help them save time by gathering and summarizing information, automating simple and repeated tasks, and even conducting an initial assessment of their clients' case. Thus, far from being a threat, AI can represent a great opportunity for insolvency professionals. By focusing on more complex tasks, they can ultimately take on more high value work. Simultaneously from the perspective of companies, obtaining advice from competent insolvency professionals will become more affordable given the reduced number of hours employed in their case.

4.3. Investigations

The legal and financial advisors of distressed firms and the IPs in charge of managing or supervising an insolvency proceeding can also rely on technology for the purpose of conducting

[72] Ibid.
[73] Felix Steffek, 'A Story of Two Holy Grails: How Artificial Intelligence Will Change the Design and Use of Corporate Insolvency Law' (2024) University of Chicago Review Online < https://lawreview.uchicago.edu/online-archive/story-two-holy-grails-how-artificial-intelligence-will-change-design-and-use> accessed 17 February 2025.
[74] Akshaya Kamalnath, 'The Future of Corporate Insolvency Law: A Review of Technology and AI-powered Changes (2024) 33(1) International Insolvency Review 40, 53-54.
[75] Ibid.
[76] Ibid.

investigations.[77] Technology Assisted Review (TAR) facilitates the location of information in a more effective and efficient manner.[78] Therefore, given that IPs often lack time and resources to conduct comprehensive investigations, TAR can play a key role in insolvency proceedings.[79] For instance, they can be helpful for investigations related to a potential dissipation of assets prior to the commencement of insolvency proceedings,[80] and more generally for investigating directors' conduct in the zone of insolvency. The use of AI-powered technology can also assist IPs when analyzing the underlying reasons for a situation of financial distress as well as the strategies potentially used to turn around a viable but insolvent firm.[81]

4.4. Alternative Dispute Resolution and insolvency

Technology has also been deployed in other alternative dispute resolution mechanisms to provide a more cost- and time-effective solution to legal disputes. Such solutions, sometimes in the form of online platforms, may assist in the analysis of disputes, providing preliminary legal advice, and generating drafts from standardized forms.[82] Therefore, they could perfectly be used in the insolvency context, for example facilitating a settlement without the involvement of courts.[83] While such cost-effective measures can be useful for any insolvent firms, they can become particularly helpful for MSEs given that they often lack the resources to obtain legal and financial advice and embark on a costly restructuring process. As AI applications can increase the level of information and reduce transaction costs, it has been argued that they can put an end to the negotiation processes as we know them.[84] Therefore, such advancements in technologies are also expected to represent a significant change in the methods and dynamics of corporate restructurings.

4.5. Assessment of insolvency systems

The use of technology can facilitate the collection of information about insolvency proceedings. Understanding the features and outcomes of insolvency proceedings is essential for the

[77] Robin Ganguly, 'A leap forward for law AI' Recovery (Summer 2018); Joanna Goodman, 'Artificial Intelligence in insolvency work: Transforming critical care' (2018) INSOL Europe (Autumn 2018).
[78] Ibid.
[79] Ibid.
[80] Ibid.
[81] Joanna Goodman, 'Artificial Intelligence in insolvency work: Transforming critical care' (2018) INSOL Europe (Autumn 2018).
[82] Mentioning the successful experience of Canada in the use of this online dispute resolution method, see See Akshaya Kamalnath, 'The Future of Corporate Insolvency Law: A Review of Technology and AI-powered Changes (2024) 33(1) International Insolvency Review 40, 49-50.
[83] Ibid.
[84] Horst Eidenmuller, 'Game Over: Facing the AI Negotiator' (2024) The University of Chicago Law Review Online <https://lawreview.uchicago.edu/online-archive/game-over-facing-ai-negotiator>

assessment and improvement of insolvency systems.[85] Unfortunately, not many countries gather, or at least publish, detailed data on insolvency proceedings.[86] In fact, many countries do not even publish the most basic information on insolvency proceedings, such as the number of liquidation and reorganization procedures. In a digitalized world, collecting information about the features and outcome of insolvency proceedings can be easily done. Moreover, it can be facilitated if, as part of a digitalized insolvency process, the person in charge of managing or supervising the procedure is required to fill out some standardized forms providing key information about the procedure. Given that having access to such information is key for the assessment and improvement of an insolvency system, adopting strategies to collect and publish information and statistics on insolvency proceedings should be a priority for regulators and policymakers.

5. Challenges and risks in the adoption of technology in insolvency proceedings

The digitalization of insolvency proceedings does not come without challenges. First of all, it generally requires certain actions from public authorities that may range from changes to the law to the enactment of regulations or guidelines. For example, Colombia enacted a law that, apart from endorsing the use of technology in alternative dispute resolution, allowed insolvency proceedings to be advanced through technological means.[87] In the United Kingdom, the Electronic Pilot Scheme was introduced to enable e-filing 24 hours a day.[88] In Finland, the Bankruptcy Act was amended in July 2019 to formalize the use of the KOSTI digital portal.[89] In India, the IBBI has enacted regulations with the purpose of facilitating the digitalization of insolvency proceedings, especially in the context of asset sales through online platforms.[90]

---

[85] Jose M Garrido, Wolfgang Bergthaler, Chanda M DeLong, Juliet Johnson, Amira Rasekh, Anjum Rosha, Natalia Stetsenkoet, 'The Use of Data in Assessing and Designing Insolvency Systems' (2019) IMF Working Paper No 2019/027 <https://www.imf.org/en/Publications/WP/Issues/2019/02/04/The-Use-of-Data-in-Assessing-and-Designing-Insolvency-Systems-46549> accessed February 17, 2025.

[86] Exceptions include countries like Australia, Canada, Chile, France, India, Spain, the United Kingdom and the United States. With higher or lower level of details, those jurisdictions publish relatively comprehensive insolvency statistics.

[87] Irma Isabel Rivera, 'The Implementation of New Technologies Under Colombian Law and Incorporation of Artificial Intelligence in Judicial Proceedings' (2022) International Bar Association <https://www.ibanet.org/article/14AF564F-080C-4CA2-8DDB-7FA909E5C1F4> accessed 17 February 2025.

[88] See Ross Keeble, 'A look ahead: modernisation and digitisation of the Civil Courts of England and Wales, 2023–24' (2023), https://legalbriefs.deloitte.com/post/102i8wp/a-look-ahead-modernisation-and-digitisation-of-the-civil-courts-of-england-and-w> accessed 30 January 2025.

[89] Akshaya Kamalnath, 'The Future of Corporate Insolvency Law: A Review of Technology and AI-powered Changes (2024) 33(1) International Insolvency Review 40, 46-47.

[90] See, *e.g.,* Insolvency and Bankruptcy Board of India Circular, 29 October 2024 <https://ibbi.gov.in/uploads/legalframwork/77e7f6034a0c4dab174712fbf00920a6.pdf> accessed February 17, 2025; Insolvency and Bankruptcy Board of India Circular, 10 January 2025 < https://ibbi.gov.in/uploads/legalframwork/43ec517d68b6edd3015b3edc9a11367b.pdf> accessed February 17, 2025.

Second, it requires investing in technology. From developing and providing the platforms facilitating the digitalization of insolvency proceedings to the maintenance and technically assistance needed for the successful operation of those platforms, countries need to spend time and resources building the infrastructure. In that process, they should rely on, or at least work closely with, the private sector. For example, India has leaned on expertise within the private sector to build and implement its eBKray auction platform.[91] In Spain, private agencies complement the role of public platforms in the sale of assets as part of the the simplified insolvency proceeding available for microenterprises.[92]

Third, once the technological infrastructure has been built, countries need to invest resources in training the people more directly involved in the use of those platforms, such as judges, judicial officers, lawyers, IPs, banks, and entrepreneurs. Therefore, the digitalization of insolvency proceedings should be accompanied by different activities and training programs to facilitate the use and familiarity with the new tools. To reach the widest possible audience and reduce the costs of providing such training programs, those courses can be offered online and through the collaboration of private and public entities, including government agencies, chambers of commerce, as well as association of banks and IPs.

Fourth, as with any technology powered by AI, there are always risks of inherent biases depending on the training data used.[93] Moreover, it is important to determine when and how AI will be deployed to enhance in insolvency process.[94] Initial deployments of AI powered technology should be tested in processes that do not require complex decision making, and checks and balances should be put in place to ensure that errors will be caught.[95] Further, adequate time should be allocated for rigorous testing to allow the AI to learn from mistakes and develop into a robust tool.[96]

---

[91] Ibid.
[92] The involvement of private actors to complement the role of public platforms is recognized under Spanish insolvency law. See Recast Insolvency Act 2020, Art, 708.3. In practice, such private-public collaboration has proved to be a useful mechanism to solve the limitations of the public platforms and has led to the rise of many private agencies that facilitate the sale of assets in insolvency proceedings. See Beatriz Pérez Galdón (Expansion, 21 June 2024) <https://cincodias.elpais.com/extras/pymes/2024-06-21/las-subastas-de-negocios-en-liquidacion-una-tendencia-en-alza-para-las-pymes-y-los-autonomos.html> accessed 18 February 2025.
[93] Christoph Henkel, 'The Impact of Artificial Intelligence on Insolvency Law and Practice', in Paul Omar and Jennifer Gant (eds), *Research Handbook on Corporate Restructuring* (Edward Elgar, 2021) 395-396.
[94] Akshaya Kamalnath, 'The Future of Corporate Insolvency Law: A Review of Technology and AI-powered Changes (2024) 33(1) International Insolvency Review 40, 42.
[95] Christoph Henkel, 'The Impact of Artificial Intelligence on Insolvency Law and Practice', in Paul Omar and Jennifer Gant (eds), *Research Handbook on Corporate Restructuring* (Edward Elgar, 2021) 395-396.
[96] Ibid

Fifth, the digitalization of insolvency proceedings may bring new risks from a privacy and data security perspective.[97] Therefore, regulators need to clarify the obligations of the different actors involved in the collection of personal information and the management of digital platforms.[98] Moreover, risk mitigation and contingency plans should also be developed in tandem with technology and platform development to ensure that the insolvency process is not disrupted by system outages.

6. The future of insolvency law in a technology-driven world

In some countries, insolvency proceedings can serve as an effective tool to deal with financial distress. However, achieving that goal can often be very costly, as happens in the United States. In other jurisdictions, however, the scenario is much worse: even if insolvency proceedings are also costly processes, they do not deliver the expected outcomes. Given the impact of insolvency law on the real economy, having an inefficient or ineffective insolvency system is not costless.[99] *Ex ante*, the absence of an efficient and well-functioning insolvency system can hamper entrepreneurship, innovation, access to finance and the creation of jobs and wealth. *Ex post*, it can prevent the reorganization of viable but financially distressed firms and the reallocation of assets of non-viable businesses. Therefore, jobs and value will be lost, and the inability to reallocate assets towards more productive activities will also hamper the competitiveness of the economy. Moreover, by reducing the returns to creditors, an inefficient insolvency regime can increase the levels of non-performing loans in the banking sector and even jeopardize the stability of the financial system.

This article has shown that technology has the potential to play a key role in promoting more efficient insolvency systems. Namely, it has been argued that the digitalization of many aspects and stages of insolvency proceedings can significantly reduce the length and costs of insolvency proceedings. Moreover, it can help address, in a more effective manner, many of the costs and challenges traditionally existing in insolvency proceedings, such as asymmetries of information, collective action problems, passive behavior (especially in the context of MSEs), lack of liquidity, and the ability of insolvency proceedings to put the debtor's assets to their best use.

---

[97] Akshaya Kamalnath, 'The Future of Corporate Insolvency Law: A Review of Technology and AI-powered Changes (2024) 33(1) International Insolvency Review 40, 51.
[98] Ibid.
[99] For an analysis of the role of insolvency law in the real economy, see Aurelio Gurrea-Martinez, *Reinventing Insolvency Law in Emerging Economies* (Cambridge University Press, 2024) 3-22

Additionally, it has been mentioned that the use of AI and data analytics tools for insolvency-related purposes is expected to change the design and practice of insolvency law. On the one hand, many of these tools can be used to facilitate the detection of financial distress and provide advice to companies. On the other hand, AI applications can facilitate negotiations and preliminary solutions in insolvency.[100] Finally, some authors have convincingly argued that the increasing sophistication of AI tools can lead to more predictable outcomes in insolvency and potentially expand the room for private contracting between debtors and sophisticated lenders.[101] Therefore, that may end up reducing the scope of and justification for the mandatory nature of corporate insolvency law.[102] As a result, countries may be embracing a more contractual approach to deal with financial distress.[103] In such a world, corporate insolvency law would remain a tool used by default as well as a state-supplied mechanism mainly provided for the protection of non-adjusting and weakly adjusting creditors.[104]

7. Conclusion

This article has examined the potential of technology to tackle one of the most important problems that has been concerning regulators and insolvency scholars for decades, that is, how to make insolvency proceedings more efficient. To that end, it has started by exploring how countries are deploying, or can deploy, technology in different aspects and stages of insolvency proceedings. It has also discussed how AI is expected to change the design and practice of insolvency law. It has been pointed out that technology can serve as a valuable tool to reduce the costs and length of insolvency proceedings. Therefore, even though technology also brings certain risks and challenges that need to be addressed, regulators and policymakers should actively promote the reforms and investments in infrastructure and human capital ultimately facilitating the transition towards a more technology-driven insolvency system.

---

[100] Horst Eidenmuller, 'Game Over: Facing the AI Negotiator' (2024) The University of Chicago Law Review Online <https://lawreview.uchicago.edu/online-archive/game-over-facing-ai-negotiator>
[101] Ibid.
[102] Felix Steffek, 'A Story of Two Holy Grails: How Artificial Intelligence Will Change the Design and Use of Corporate Insolvency Law' (2024) University of Chicago Review Online < *https://lawreview.uchicago.edu/online-archive/story-two-holy-grails-how-artificial-intelligence-will-change-design-and-use> accessed 19 February 2025.*
[103] Ibid. Under this hypothesis, insolvency laws would be increasingly moving towards the types of contractual approaches that have been suggested in the academic literature. For a ground-breaking article challenging the mandatory nature of insolvency law and advocating for a new approach that provides more flexibility to debtors and creditors, see Robert K Rasmussen, 'Debtor's Choice: A Menu Approach To Corporate Bankruptcy' (1992) 71 Texas Law Review 51. For another novel proposal advocating for a contractual approach to corporate insolvency, see Alan Schwartz, 'A Contract Theory Approach to Business Insolvency' (1998) 107 The Yale Law Journal 1807.
[104] Ibid.

european corporate governance institute

about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities.*

The ECGI will produce and disseminate high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It will draw on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

www.ecgi.global

european corporate governance institute

ECGI Working Paper Series in Law

Editorial Board

Editor	Amir Licht, Professor of Law, Harry Radzyner Law School, Reichman University
Consulting Editors	Hse-Yu Iris Chiu, Professor of Corporate Law and Financial Regulation, University College London
	Martin Gelter, Professor of Law, Fordham University School of Law
	Geneviève Helleringer, Professor of Law, ESSEC Business School and Oxford Law Faculty
	Kathryn Judge, Professor of Law, Coumbia Law School
	Wolf-Georg Ringe, Professor of Law & Finance, University of Hamburg
Editorial Assistant	Asif Malik, ECGI Working Paper Series Manager

https://ecgi.global/content/working-papers