# DIGITALISATION OF DEBT RECOVERY IN BANKING: LEGAL VALIDITY AND CHALLENGES OF E-NOTICES UNDER THE IT ACT, 2000

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**ABSTRACT**

This study aimed to analyse the legal validity, adoption, and challenges of using electronic notifications (e-notices) in debt recovery processes inside Indian banks, referencing the Information Technology Act, 2000. A quantitative study design was employed to gather data from 384 banking professionals through a structured Likert-scale questionnaire, addressing variables like legal recognition, adoption, awareness and training, efficiency, technical challenges, and legal challenges. Stratified random sampling guaranteed diverse representation, while SPSS facilitated reliability testing, descriptive analysis, and regression to evaluate four hypotheses concerning the interplay between legal recognition, training, technical/legal challenges, and the uptake and efficiency of e-notices. Findings demonstrated that legal acknowledgement under the IT Act 2000 substantially propels adoption, whereas awareness and training improve implementation efficacy. Both technological and legal issues, while seen as obstacles, shown notable correlations with efficiency, indicating that surmounting them might enhance operational performance. The study indicates that the integration of demanding regulatory frameworks, advanced technology infrastructure, and ongoing capacity-building programs can expedite the effective and sustainable implementation of e-notices, hence enhancing debt collection operations in India's banking industry.

**Keywords:** Debt Recovery, E-Notices, Digitalisation in Banking, Information Technology Act 2000, Legal Recognition, Technical Challenges, Legal Challenges, Banking Sector

## 1 Introduction

In today's rapid financial environment, banks and financial institutions frequently encounter the difficulty of recovering outstanding payments. The prompt and effective collection of these debts is essential for sustaining financial stability and profitability. Justice League Lawyers, a premier debt recovery law practice in Chennai, specialises in delivering complete legal solutions to banks and financial institutions throughout India. Justice League Lawyers, including a team of seasoned DRT and DRAT attorneys, is dedicated to achieving outstanding outcomes and safeguarding their clients' interests (*Debt Recovery for Banking and Financial Institutions*, 2024). Debt recovery implies the procedure of recovering outstanding debts from individuals or organisations who have failed to meet their financial commitments. This might involve legal proceedings, negotiations, and various techniques to guarantee that creditors obtain the amounts to which they are entitled.

### The importance of Debt recovery for banking and financial institutions:

For banks and financial institutions, effective debt recovery is essential for several reasons:

**Financial stability:** Recovering overdue debts is essential for preserving the financial stability of these institutions.

**Profitability:** Timely debt collection enhances the overall profitability of banks and financial institutions.

**Risk management:** Efficient debt recovery techniques decrease the risks inherent with lending.

**Customer satisfaction:** Prompt and effective debt recovery can enhance customer satisfaction and loyalty.

Digital represents the new standard in the banking sector, as financial institutions globally are transitioning towards digitalisation. Financial institutions of various sizes and located in diverse regions are investing significantly in digital initiatives to sustain a competitive advantage and optimise client delivery (Deshpande, 2018). Digitalisation facilitates data analytics and insight, enabling banks to connect more effectively with customers. The financial advancement of the Indian banking sector occurred following the nationalisation of 14

prominent scheduled banks in July 1969 and 6 in April 1980. In the 1990s, the future of Indian Bank appears both promising and transformational. India's banking sector may attain the status of the fifth largest globally by 2020 and the third largest by 2025. Indian banks employed technology-driven solutions to enhance revenue production, improve customer experience, optimise cost structures, and control organisational risk. However, there is significant variability in technological applicability and capacity within the banking business.

The modern world has seen significant advancements in technology and the internet, leading to digitalization. People are increasingly reliant on technology and the internet to fulfill their needs quickly and easily. This has led to the digital revolution in various sectors, including banking(Sujana, 2018). Traditional banks are now offering high-quality web and mobile sites/apps, while digital banking has become an integrated mobile experience, allowing customers to access account details, pay online bills, and transfer money without visiting a physical branch. However, the invention of ATMs and credit cards paved the way for the digitization of banks. The commercial evolution of the internet in the early 1990s completely overhauled the banking sector, introducing online banking services. Traditional street-side banks started offering restricted online services to cut down costs, leading to numerous banks creating their own cyber presence with newly designed websites offering various services. This has also affected the hiring process for professionals in the banking sector, as new career opportunities require technology experts in addition to banking examinations.

In the last ten years, the explosion of technology and electronic commerce has resulted in an increase in cybercrimes and data-related offences in India(Acharya, 2025). According to recent reports, cybercrime incidents in India have increased thrice from 2022 to 2024. The Information Technology Act of 2000 mitigates cybercrime and safeguards critical data. The paper delineates the principal characteristics of the IT Act 2000, clarifies its protective measures for online users, and underscores its ongoing significance in the contemporary digital economy.

The Informational Technology Act of 2000, approved by the Indian Parliament, serves as the principal legislation in India addressing cybercrime and internet commerce. It was designed to ensure the legal execution of digital transactions and mitigate cybercrimes, based on the Model Law on Electronic Commerce established by the United Nations Commission on International Trade Law. The legal framework, referred to as the IT Act 2000, comprises 94 provisions,

organised into 13 chapters and 4 schedules. The bill of this law was approved in the Budget by a contingent of Parliament members, led by the then Minister of Information Technology, and was signed by the President on 9 May 2000. It was implemented on 17 October 2000, imposing restrictions on all individuals irrespective of their country and geographic location.

## Importance of IT ACT 2000

- The Act provides legal acknowledgement to electronic records, facilitating the expansion of e-commerce and digital transactions in India.
- It has recognised electronic signatures as legally equivalent to physical signatures.
- This act establishes the Controller of Certifying Authorities (CCA), a governmental entity tasked with the issuance and maintenance of digital signatures and certificates' security.
- The Act requires that companies secure consent from consumers before collecting or using their personal information.
- Upon the Act's implementation, individuals are entitled to seek compensation for harm or misuse of their personal data by an unauthorised entity. The Act enables the Government of India to criminalise cybercrime, hacking, and the dissemination of computer viruses.

Economic geographers focus on understanding the construction and maintenance of financial markets, but there is a lack of attention on the political constitutedness of these markets and the co-constitutive nature of inequalities. The use of technology in financial markets is a political process, as it creates market objects and calculative devices through networks of interpersonal relationships(Burton, 2020). The emergence of new financial technologies and digitalization of financial services presents an opportunity to assess whether existing consumer financial behaviour, practices, and business models are being disrupted in different geographic spaces(Ash, James, Ben Anderson, 2018). Technological developments can create positive relationships between people, organizations, data, technology, and space, but also raise concerns about the ethical deployment of digital technology, digital inequalities, digital rights, and citizen responses to digital activism. Recent research has focused on alternative methods

of credit scoring, new digital platforms, and the visual interface of services. The digitalization within the consumer debt collection process is a gap in existing literature that offers the opportunity to address debates at the intersection of financial markets' geography and geographies' power dynamics.

### Challenges in implementing Electronic notice to creditors

Implementing electronic notices to creditors presents challenges, including a lack of awareness among them. Many are accustomed to receiving mail notices and are unaware of electronic options, leading to delays, errors, and confusion (*Challenges In Implementing Electronic Notice To Creditors*, n.d.). This can cause frustration and confusion for both creditors and debtors. Electronic notices pose a significant security and privacy challenge due to their potential vulnerability to cyber-attacks and data breaches, necessitating strict security measures to prevent legal consequences and damage to reputation.

- Many creditors are resistant to electronic notices due to lack of technology or infrastructure, or discomfort with the idea of receiving sensitive information electronically, preferring the traditional paper notice method.

- Electronic notices must adhere to state and federal regulations like the E-SIGN Act and UETA, which can be challenging for small businesses and organizations to comply with, especially in the global and national commerce sector.

- Electronic notices necessitate access to technology like computers, smartphones, and email, which may not be accessible to all creditors, particularly those with less tech-savvy skills or limited internet access in rural areas.

- Small businesses may face high costs in implementing electronic notice systems, necessitating investments in software, hardware, and infrastructure for secure transmission.

## 2 Literature review

(Yahiya & Bani Ahmad, 2024) explained financial industry is undergoing a transformation in debt recovery due to an increase in delinquent loans. Artificial Intelligence (AI) is being used to automate and improve debt collection processes. AI systems use machine learning, natural

language processing, and predictive analytics to analyze large amounts of data, generate recovery forecasts, and streamline operations. This technology is expected to be compliant, precise, and effective, reducing costs and operational inefficiencies. Its potential to transform debt management and ensure financial institutions' profitability and efficacy is significant.

(Bahl et al., 2022) investigated the impact of digitalization, demonetization, and consolidation of banks on training and development, focusing on senior bank officers in India. The balanced scorecard was used to assess bank performance from financial, customer, innovative, and growth perspectives. Job enrichment was found to be a key factor in enhancing employee performance. Partial Least Square-Structured Equation Modeling (PLS-SEM) was applied to examine the relationship between drivers of change and job enrichment and banking sector performance. The results suggest that training, along with selected drivers and job enrichment, significantly influences bank performance. Special training has a higher loading, suggesting the need for further focus on training.

(Samuel, 2024) explored the role of debt recovery tribunals (DRTs) in India's debt recovery and securitization cases. It suggests leveraging technology to improve efficiency, including case filing, digitization of records, eCourts integration, and data analytics. The research methodology involves studying current processes, identifying pain points, analysing technology interventions, and formulating implementable solutions. The proposed solutions can modernize DRTs and positively impact the Indian credit ecosystem, resulting in faster case resolution, improved recovery rates, and improved stakeholder access.

(Samuel et al., 2024) analysed the volume of Non-Performing Assets (NPAs) in India, a key indicator of banking adequacy. The increasing number of NPAs in commercial banks is a concern, and a well-functioning recovery mechanism can reduce their number. Three legal measures are being used to address NPAs: Lok Adalats, Debt Recovery Tribunals, and the Securitisation and Reconstruction of Financial Assets and Enforcement of Securities Interest Act (SARFAESI Act) of 2002. The analysis revealed a significant difference between the amount of cases appertained to the recovery mechanism and the quantum recovered through recovery channels.

(-, 2024) explores India's lending landscape, which is crucial for economic growth. It details the laws governing debt collection and the use of internal debt recovery teams and legal options like the Debt Recovery Tribunal (DRT) to reduce default risks. It also examines the

consequences of non-payment and potential ways to ease debt loads. The study highlights the complex relationship between lending practices, regulatory frameworks, and debt recovery mechanisms, aiming to improve understanding of debt handling in the financial world. (Alamelumangai & Sudha, 2019) The Indian banking industry is facing a significant issue with non-performing assets (NPAs), with stressed advances increasing and recovery rates slowing down. The RBI's report shows a decline in NPA recovery rates, reaching 20.8% in 2016-17. Existing recovery channels, such as the Debt Recovery Tribunal, Lok Adalat, and SARFAESI Act 2002, have also seen reduced recovery rates. The study uses ANOVA to analyze these trends.

(Le et al., 2023) examined the factors affecting the growth of digital credit, focusing on cross-country data from 2013 to 2019. It found that regulatory frameworks, the economy's innovative capacity, and financial development are significant factors, particularly fintech credit. However, the study found that innovation capacity is more critical for the expansion of bigtech credit. The findings provide important implications for market participants and authorities in promoting digital credit, highlighting the critical roles of money laundering and terrorist financing frameworks and innovation capacity.

(Jha, 2019) explored the issue of Non-Performing Assets (NPAs) in Indian banks, which affect not only banks but the entire economy. NPAs reflect the state of the industry and trade. Lending is encouraged as it transfers funds to productive purposes, leading to economic growth. However, lending also carries credit risk, which arises from borrower failure. Non-recovery of loans and interest forms a major hurdle in the credit cycle, affecting bank profitability. The rising NPA poses a challenge to the survival of the banking industry in India, hindering the country's desire to become an economic superpower. Recent steps taken by the Reserve Bank of India and the Government of India are discussed.

### 2.1 Research gap

Despite prior research has explored various aspects of debt recovery in India—including the application of artificial intelligence for automation, the impact of training and organisational transformation on banking efficacy, the modernisation of debt recovery tribunals, and the operation of legal frameworks such as SARFAESI, DRTs, and Lok Adalats—there exists a deficiency of cohesive research that amalgamates these viewpoints into a singular, technology-oriented legal framework for debt recovery. Most current research primarily emphasises

operational efficiency via technology, particular legal frameworks, or overarching regulatory and economic influences, although seldom investigates the integration of developing digital tools inside established legal recovery processes to improve efficacy. Moreover, although the issues of increasing non-performing assets and diminishing recovery performance are extensively documented, there exists a paucity of empirical research regarding the synergistic impact of technological adoption, legal compliance, and workforce readiness on sustainable and legally sound debt recovery practices within the banking sector. This disparity underscores the necessity for research that integrates technological capabilities, legal enforceability, and practical execution.

## 3 Methodology

### 3.1 Research design

The study used a quantitative technique as one of its research approaches to examine the Digitalisation of Debt Recovery in Banking. Data was collected from 384 respondents using a structured online questionnaire. The validated questionnaire used to gather the data consisted of Likert-scale questions. "Statistical software for the social sciences," or SPSS, was used to analyse the data.

### 3.2 Conceptual framework

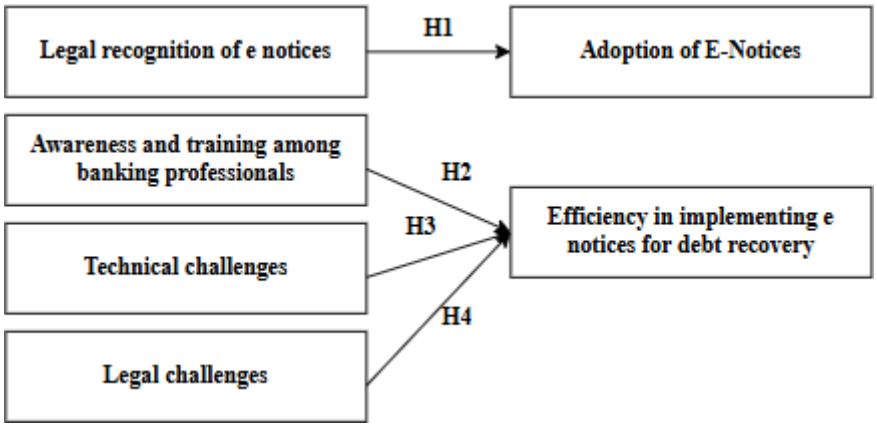



***Figure 1 Conceptual frame work***

### 3.3 Objectives

- To examine the legal provisions under the Information Technology Act, 2000 that

govern the issuance and validity of e-notices in debt recovery by banks.

- To evaluate the extent of adoption of e-notices in debt recovery practices among Indian banks.

- To analyze the challenges—technical and legal—faced in implementing e-notices for debt recovery.

### 3.4 Hypothesis

H1: There is a significant relationship between the legal recognition of e-notices under the IT Act 2000 and their adoption in debt recovery practices by banks.

H2: Higher awareness and training among banking professionals lead to increased efficiency in implementing e-notices for debt recovery.

H3: Technical challenges have a significant impact on the implementation of e-notices in debt recovery by banks.

H4: Legal challenges have a significant impact on the implementation of e-notices in debt recovery by banks.

### 3.5 Sample selection

The study used a sample size of 384 participants in order to provide a representative dataset for analysis will be obtained using a stratified random sampling method. investigated the Digitalisation of Debt Recovery in Banking.

### 3.6 Data collection

This research used a quantitative approach, ensuring accuracy and reliability via the use of systematic data collection methodologies. A standardized several Likert-scale observations questionnaire was used as the main tool for collecting data in order to evaluate the Digitalisation of Debt Recovery in Banking. Important questionnaire elements are Legal recognition of e notices, Adoption of e notices, Awareness and training among banking professionals, Efficiency in implementing e notices for debt recovery, Technical challenges, Legal challenges. Google Forms was used to collect 384 legitimate replies. To represent the

variety of the population, the sample included a range of income levels and a balanced mix of genders. We'll supplement the primary data with secondary data from government publications, published research, and institutional records.

### 3.7 Measures

Data has been gathered with the help of a structured questionnaire. Questionnaire has been prepared using 5 Likert-scale (Strongly disagree to Strongly agree) where respondents will be asked to share their opinions regarding various research questions under study. Questionnaire has a set of both open ended and closed ended questions. Questions have been carefully crafted so as to gather meaningful information with respect to identified research variables. There are five categories of respondents in the survey and a separate questionnaire has been designed for each category of respondents. The bellow mention table show variables and no. items considered for the study.

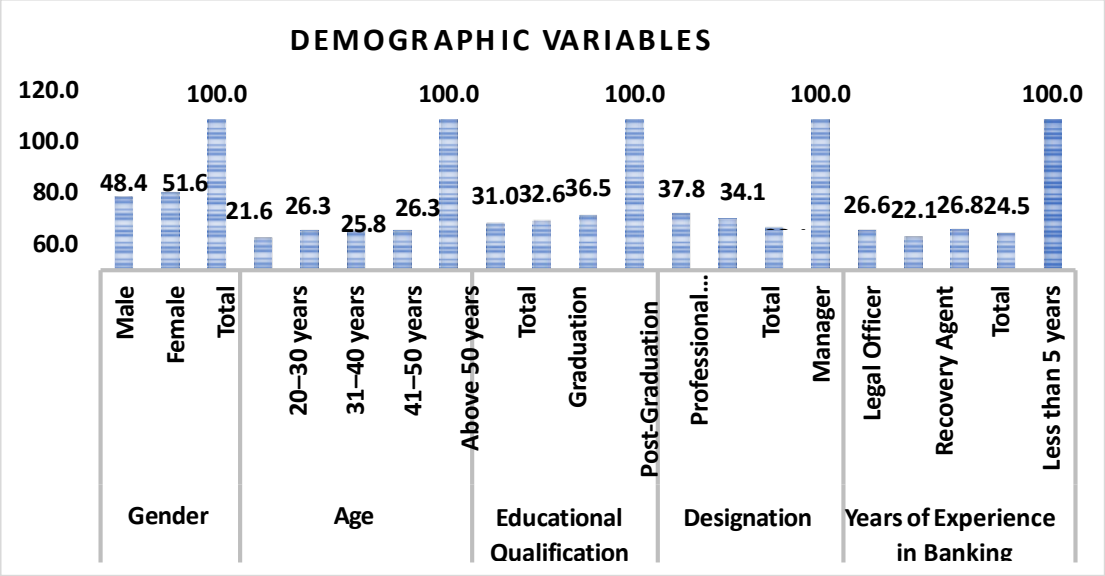
| S. No | Variable Name | No. Items |
|---|---|---|
| 1 | Legal recognition of e notices | 5 |
| 2 | Adoption of e notices | 5 |
| 3 | Awareness and training among banking professionals | 5 |
| 4 | Efficiency in implementing e notices for debt recovery | 5 |
| 5 | Technical challenges | 5 |
| 6 | Legal challenges | 5 |

# 4 Results

## 4.1 Demographic variables

***Table 1 Demographic variables***

| | | **Frequency** | **Percentage** |
|---|---|---|---|
| **Gender** | Male | 186 | 48.4 |
| | Female | 198 | 51.6 |
| | Total | 384 | 100.0 |
| **Age** | 20–30 years | 83 | 21.6 |
| | 31–40 years | 101 | 26.3 |
| | 41–50 years | 99 | 25.8 |
| | Above 50 years | 101 | 26.3 |
| | Total | 384 | 100.0 |
| **Educational Qualification** | Graduation | 119 | 31.0 |
| | Post-Graduation | 125 | 32.6 |
| | Professional Qualification | 140 | 36.5 |
| | Total | 384 | 100.0 |
| **Designation** | Manager | 145 | 37.8 |
| | Legal Officer | 131 | 34.1 |
| | Recovery Agent | 108 | 28.1 |
| | Total | 384 | 100.0 |
| **Years of Experience in Banking** | Less than 5 years | 102 | 26.6 |
| | 5–10 years | 85 | 22.1 |
| | 11–15 years | 103 | 26.8 |
| | Above 15 years | 94 | 24.5 |
| | Total | 384 | 100.0 |




The demographic profile of the respondents indicates an equitable gender distribution, comprising 48.4% male and 51.6% female participants. The predominant age groups are those aged 31–40 years and over 50 years, each constituting 26.3% of the sample, closely followed by the 41–50 years' group at 25.8%, while the youngest group, 20–30 years, comprises 21.6%. The educational qualifications indicate a highly qualified respondent base, with 36.5% holding professional qualifications, 32.6% possessing post-graduate degrees, and 31.0% being graduates. In terms of professional roles, managers represent the biggest proportion at 37.8%, followed by legal officers at 34.1% and recovery agents at 28.1%. The distribution of banking experience is rather uniform, with a value of 26.8.

## Validity and reliability

***Table 2 Validity and reliability***

| **Constructs** | **Cronbach's Alpha** | **AVE** | **Composite Reliability** |
|---|---|---|---|
| Legal recognition of e notices | 0.879 | 0.703 | 0.833 |
| Adoption of e notices | 0.897 | 0.715 | 0.842 |
| Awareness and training among banking professionals | 0.892 | 0.705 | 0.839 |

| | | | |
|---|---|---|---|
| Efficiency in implementing e notices for debt recovery | 0.891 | 0.709 | 0.84 |
| Technical challenges | 0.856 | 0.677 | 0.827 |
| Legal challenges | 0.896 | 0.715 | 0.842 |

The results for reliability and validity indicate that all constructs in the study show strong internal consistency and convergent validity. Cronbach's Alpha values for all constructs range from 0.856 to 0.897, surpassing the required threshold of 0.7, so affirming the high reliability of the measuring scales. The Average Variation Extracted (AVE) values span from 0.677 to 0.715, exceeding the acceptable threshold of 0.5, which signifies that each construct accounts for more than half of the variation of its indicators, thereby confirming strong convergent validity. Correspondingly, Composite Reliability (CR) scores range from 0.827 to 0.842, significantly beyond the 0.7 threshold, so affirming that the components are assessed with considerable consistency. The findings confirm that the measuring model is reliable and valid for evaluating the factors that affect the adoption and implementation of e-notices in debt recovery by banks.

***Table 3 Mean and Std. Deviation***

| **Variables** | **Mean** | **Std. Deviation** |
|---|---|---|
| Legal recognition of e notices | 3.6073 | 0.78334 |
| Adoption of e notices | 3.7031 | 0.79001 |
| Awareness and training among banking professionals | 3.7427 | 0.79163 |
| Efficiency in implementing e notices for debt recovery | 3.6703 | 0.83498 |
| Technical challenges | 3.6135 | 0.74863 |
| Legal challenges | 3.7979 | 0.70596 |

The descriptive data reveal that respondents often expressed moderate to high agreement with all variables associated with e-notices in debt recovery. The highest mean score was recorded for legal issues (M = 3.7979, SD = 0.70596), indicating that participants regard legal challenges as a significant element affecting the process. Banking professionals exhibited a high level of awareness and training (M = 3.7427, SD = 0.79163), alongside a significant adoption of e-notices (M = 3.7031, SD = 0.79001), indicating a favourable disposition towards using and comprehension of e-notices. The implementation efficiency of e-notices (M = 3.6703, SD = 0.83498) and their legal recognition (M = 3.6073, SD = 0.78334) received moderate ratings, suggesting potential for enhancement in both areas. The technical challenges had the lowest mean (M = 3.6135, SD = 0.74863), although stayed above the midpoint, indicating that technology constraints are pertinent, albeit significantly less emphasised than legal challenges. The replies indicate a balanced perspective, wherein both facilitating variables (such as awareness and recognition) and limits (legal and technical) substantially influence the adoption and efficacy of e-notices in banks debt recovery.

## 4.2 Hypothesis

H1: There is a significant relationship between the legal recognition of e-notices under the IT Act 2000 and their adoption in debt recovery practices by banks.

***Table 4 Model Summary***

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .639[a] | .408 | .406 | .60865 |
| a. Predictors: (Constant), Legal recognition of e notices | | | | |

The Model Summary table shows the relationship between the legal recognition of e-notices and their implementation in banks' debt recovery processes. A correlation coefficient (R) of 0.639 signifies a strong positive association between the two variables. The R Square value of

0.408 indicates that roughly 40.8% of the variation in the acceptance of e-notices is attributable to their legal recognition under the IT Act 2000. The Adjusted R Square (0.406) validates the model's explanatory ability post sample size adjustment, while the standard error of estimate

(0.60865) signifies a substantial dispersion of residuals around the regression line.

***Table 5 ANOVA***

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 97.521 | 1 | 97.521 | 263.243 | .000[b] |
| | Residual | 141.515 | 382 | .370 | | |
| | Total | 239.036 | 383 | | | |
| a. Dependent Variable: Adoption of e notices | | | | | | |
| b. Predictors: (Constant), Legal recognition of e notices | | | | | | |

The ANOVA table examines the overall significance of the regression model. The regression sum of squares (97.521) relative to the residual sum of squares (141.515) indicates that a significant percentage of the overall variation in adoption is explained by the predictor. The F-statistic of 263.243, with a significance level of p = 0.000, substantiates the statistical significance of the model, indicating that the legal recognition of e-notices is a viable and meaningful predictor of their adoption in debt recovery operations.

***Table 6 Coefficient***

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.379 | .147 | | 9.413 | .000 |
| | Legal recognition of e notices | .644 | .040 | .639 | 16.225 | .000 |
| a. Dependent Variable: Adoption of e notices | | | | | | |

The Coefficients table provides the entire regression equation. The constant (B = 1.379, p < 0.001) signifies the baseline adoption level with zero legal recognition. The unstandardized coefficient for legal recognition of e-notices (B = 0.644, p < 0.001) signifies that a one-unit increase in legal recognition correlates with a 0.644 unit rise in the adoption of e-notices. The standardised coefficient (Beta = 0.639) substantiates the robust positive correlation. The elevated t-value (16.225) and the significance level (p = 0.000) affirm that legal recognition is a critically significant determinant affecting the adoption rate.

H2: Higher awareness and training among banking professionals lead to increased efficiency in implementing e-notices for debt recovery.

***Table 7 Model Summary***

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .606[a] | .367 | .366 | .66493 |
| a. Predictors: (Constant), Awareness and training among banking professionals | | | | |

The model summary shows that the independent variable—awareness and training among banking professionals—exerts a significant impact on the dependent variable, efficiency in implementing e-notices for debt recovery. An R score of 0.606 indicates a reasonably strong positive correlation between the two variables. The R Square value of 0.367 indicates that 36.7% of the variance in efficiency is explicable by awareness and training, with the residual variance ascribed to factors outside the model. The corrected R-squared value of 0.366 validates the model's stability, while the standard error of the estimate (0.66493) indicates satisfactory predictive accuracy.

***Table 8 ANOVA***

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| 1 | Regression | 98.126 | 1 98.126 | 221.936 | .000[b] |
| | Residual | 168.896 | 382 .442 | | |
| | Total | 267.022 | 383 | | |
| a. Dependent Variable: Efficiency in implementing e notices for debt recovery | | | | | |
| b. Predictors: (Constant), Awareness and training among banking professionals | | | | | |

The ANOVA findings indicate that the regression model is statistically significant in forecasting efficiency in the implementation of e-notices for debt recovery. The F-statistic of 221.936, accompanied by a p-value of 0.000, substantiates that awareness and training among banking professionals significantly influence efficiency levels. The elevated F-value signifies substantial explanatory power of the independent variable, while the minimal significance level eliminates the probability of the results occurring by chance.

***Table 9 Coefficient***

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.277 | .164 | | 7.780 | .00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | 0 |
| | Awareness and training among banking professionals | .639 | .043 | .606 | 14.898 | .000 |
| a. Dependent Variable: Efficiency in implementing e notices for debt recovery | | | | | | |

The coefficients table indicates that the constant (intercept) is 1.277, signifying a baseline efficiency level in the implementation of e-notices, even in the absence of awareness and training. The unstandardized coefficient (B) for awareness and training is 0.639, signifying that for each one-unit improvement in awareness and training, efficiency enhances by 0.639 units. The standardised coefficient (Beta) of 0.606 indicates a substantial positive impact size. The t-value of 14.898 and the significance value of 0.000 demonstrate that this effect is extremely significant, underscoring that increased awareness and training are essential factors in enhancing efficiency in e-notice implementation.

H3: Technical challenges have a significant impact on the implementation of e-notices in debt recovery by banks.

***Table 10 Model Summary***

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .618[a] | .381 | .380 | .65763 |
| a. Predictors: (Constant), Technical challenges | | | | |

The model summary table reveals that technical challenges account for 38.1% ($R^2 = 0.381$) of the variance in the effectiveness of e-notice implementation for debt recovery by banks. The correlation coefficient ($R = 0.618$) indicates a reasonably high positive association between technical problems and efficiency. The modified $R^2$ value of 0.380 verifies that the model's

explanatory power is stable while accounting for the number of predictors. The standard error of the estimate (0.65763) indicates that the predicted values correspond closely with the observed values, signifying a satisfactory model fit.

***Table 11 ANOVA***

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 101.817 | 1 | 101.817 | 235.430 | .000[b] |
| | Residual | 165.204 | 382 | .432 | | |
| | Total | 267.022 | 383 | | | |
| a. Dependent Variable: Efficiency in implementing e notices for debt recovery | | | | | | |
| b. Predictors: (Constant), Technical challenges | | | | | | |

The ANOVA findings indicate that the regression model is statistically significant ($F = 235.430$, $p < 0.001$), showing that technical constraints are major predictors of the efficiency in deploying e-notices for debt recovery. The regression sum of squares (101.817) relative to the residual sum of squares (165.204) indicates that a significant amount of variability in efficiency is attributed to technological challenges, hence confirming the model's overall efficacy.

***Table 12 Coefficient***

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.182 | .166 | | 7.134 | .000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Technical challenges | .689 | .045 | .618 | 15.344 | .000 |
| a. Dependent Variable: Efficiency in implementing e notices for debt recovery | | | | | | |

The coefficients table indicates that technical challenges exert a positive and significant influence on the efficiency of e-notice implementation for debt recovery ($B = 0.689$, $\beta = 0.618$, $t = 15.344$, $p < 0.001$). This indicates that for each one-unit rise in technical challenges, efficiency scores improve by 0.689 units, assuming other variables remain same. The constant number ($B = 1.182$) signifies the baseline efficiency in the absence of technical problems. The elevated t-value and decreased p-value indicate that technical challenges are a significant predictor of efficiency in this setting.

H4: Legal challenges have a significant impact on the implementation of e-notices in debt recovery by banks.

***Table 13 Model Summary***

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .578[a] | .335 | .333 | .68204 |

a. Predictors: (Constant), Legal challenges

The model summary indicates that legal challenges account for 33.5% of the variance in the efficiency of banks' implementation of e-notices for debt recovery (R Square = 0.335). The correlation coefficient (R = 0.578) indicates a reasonably high positive association between legal challenges and implementation efficiency. The Adjusted R Square score (0.333) indicates that the model retains its reliability after accounting for the number of predictors. The standard error of the estimate (0.68204) indicates the average divergence of observed efficiency scores

from displayed values, indicating a good fit.

***Table 14 ANOVA***

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 89.325 | 1 | 89.325 | 192.024 | .000[b] |
| | Residual | 177.697 | 382 | .465 | | |
| | Total | 267.022 | 383 | | | |
| a. Dependent Variable: Efficiency in implementing e notices for debt recovery | | | | | | |
| b. Predictors: (Constant), Legal challenges | | | | | | |

The ANOVA findings indicate that the regression model is statistically significant in predicting efficiency in the implementation of e-notices for debt recovery ($F = 192.024$, $p < 0.001$). The regression sum of squares (89.325) in relation to the residual sum of squares (177.697) indicates that a significant amount of the variance in efficiency is attributed to legal challenges. This suggests that legal challenges substantially affect the efficiency of e-notice implementation in debt recovery processes.

***Table 15 Coefficient***

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.072 | .191 | | 5.623 | .000 |
| | Legal challenges | .684 | .049 | .578 | 13.857 | .000 |
| a. Dependent Variable: Efficiency in implementing e notices for debt recovery | | | | | | |

The coefficients table shows that legal challenges have a statistically significant beneficial effect on the efficiency of e-notice implementation ($B = 0.684$, $t = 13.857$, $p < 0.001$). The standardised beta value (0.578) signifies that an increase in legal challenges corresponds with a corresponding rise in efficiency scores, implying that banks encountering more legal issues are likely to exhibit differences in implementation efficiency. The constant value (1.072) signifies the baseline efficiency level in the absence of legal objections. The positive coefficient indicates a strong correlation between the presence and management of legal issues and the efficiency of e-notice implementation.

### 4.3 Discussion

The results show a unique and statistically significant impact of legal recognition, professional knowledge and training, as well as technological and legal challenges on the implementation and effectiveness of e-notices in debt collection in the banking industry. The legal recognition provided by the IT Act 2000 serves as a significant motivator for adoption, indicating that regulatory clarity and formal acknowledgement greatly enhance acceptance among banking professionals. Awareness and training are crucial, emphasising that the effective adoption of digital solutions relies on the preparedness and proficiency of personnel. Both technical and legal constraints have a positive and strong correlation with efficiency, suggesting that overcoming these barriers—via enhanced infrastructure, improved compliance processes, or adaptive strategies—can elevate operational performance. The demographic profile indicates a varied and seasoned respondent base, guaranteeing equitable insights into actual situations. Although the rates of adoption and efficiency assessments are somewhat elevated, there remains potential for enhancement, especially in correcting remaining technology deficiencies and reinforcing legal structures. The combination of strong internal consistency and validity across constructs validates the durability of the measurement model, enhancing the reliability of the identified correlations. The findings indicate that enhancing policies, focused capacity development, and systematic addressing of technical and legal challenges can together expedite the shift to entirely digital debt recovery systems. This highlights a dual approach for banks: enhancing enabling factors like legal recognition and training, while aggressively addressing restrictions to attain sustainable efficiency improvements in e-notice implementation.

### 4.4 Conclusion

The study indicates that the implementation and effectiveness of e-notices in debt recovery

among Indian banks are substantially affected by a confluence of legal acknowledgement, professional awareness and training, alongside the existence of technical and legal challenges. Research indicates that legal acknowledgement under the IT Act 2000 significantly propels e-notice utilisation, highlighting the necessity of a comprehensive legislative framework to foster digital transformation in banking recovery procedures. Additionally, increased knowledge and training among banking personnel significantly improve the efficacy of e-notice implementation, underscoring the necessity for capacity-building programs. Both technical and legal concerns, typically regarded as challenges, also serve as significant factors affecting efficiency, indicating that institutions confronting and resolving these issues are likely to adapt more effectively operationally. The demographic profile of responders, characterised by equitable gender representation, broad age groups, and elevated educational qualifications, suggests that insights are derived from a wide and seasoned professional background. The findings indicate that although e-notices have attained considerable acceptance and operational integration, there remains potential for enhancement in legal clarity, technical infrastructure, and ongoing training. Enhancing legal frameworks, updating technological infrastructures, and advancing skill development can collectively speed up the smooth integration and efficient execution of e-notices, thereby optimising debt recovery processes and aligning banking practices with the changing digital regulatory landscape.

**Reference**

I. S. A. (2024). Protecting Borrowers and Securing Stability: A Critical View of Debt Recovery Processes in India. *International Journal For Multidisciplinary Research*, *6*(2), 1–8. https://doi.org/10.36948/ijfmr.2024.v06i02.16870

Acharya, M. (2025). *IT Act 2000: Objectives, Features, Amendments, Sections, Offences and Penalties*.

Alamelumangai, R., & Sudha, B. (2019). Recovery Of Npas Through Debt Recovery Channels In Indian Banks - An Analysis. *Restaurant Business*, *118*(8), 245–254. https://doi.org/10.26643/rb.v118i8.7683

Ash, James, Ben Anderson, P. L. (2018). *Digital interface design and power: Friction, threshold, transition*.

Bahl, K., Kiran, R., & Sharma, A. (2022). Impact of Drivers of Change (Digitalization, Demonetization, and Consolidation of Banks) With Mediating Role of Nature of Training and Job Enrichment on the Banking Performance. *SAGE Open*, *12*(2). https://doi.org/10.1177/21582440221097393

Burton, D. (2020). Digital Debt Collection and Ecologies of Consumer Overindebtedness.

*Economic Geography*, *96*(3), 244–265. https://doi.org/10.1080/00130095.2020.1762486

*Challenges In Implementing Electronic Notice To Creditors*. (n.d.).

*Debt Recovery for Banking and Financial Institutions*. (2024). https://www.drtlaw.in/2024/08/Debt-Recovery-for-Banking-and-Financial-Institutions.html

Deshpande, M. B. N. (2018). Digitalization in Banking Sector. *International Journal of Trend in Scientific Research and Development*, *Special Issue*(Special Issue-ICDEBI2018), 80–85. https://doi.org/10.31142/ijtsrd18677

Jha, V. S. (2019). Problems of NPA in Banking Sector in India & Debt Recovery Remedies. *SSRN Electronic Journal*, 1–121. https://doi.org/10.2139/ssrn.3380757

Le, T. D. Q., Ngo, T., & Nguyen, D. T. (2023). Digital Credit and Its Determinants: A Global Perspective. *International Journal of Financial Studies*, *11*(4), 1–12. https://doi.org/10.3390/ijfs11040124

Samuel, J. (2024). *Leveraging Technology to Enhance Efficiency in Debt Recovery Processes at Debt Recovery Tribunals ( DRTs )*. *October*. https://doi.org/10.1729/Journal.41742

Samuel, J., Shanthi, R., & Samuel M, J. P. (2024). *Recovery Mechanism of Indian Commercial Banks-Special Focus on Non-Performing Assets*. *November 2023*. https://www.researchgate.net/publication/384630062

Sujana, S. V. M. (2018). *DIGITALIZATION IN BANKING SECTOR*.

Yahiya, A., & Bani Ahmad, A. (2024). Automated debt recovery systems: Harnessing AI for enhanced performance. *Journal of Infrastructure, Policy and Development*, *8*, 4893. https://doi.org/10.24294/jipd.v8i7.4893