

THE IMPACT OF ARTIFICIAL INTELLIGENCE IN THE DEBT COLLECTION PROCESS

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Abstract. *The paper discusses the stages of development of accounts receivable in the digital world. The focus is on the possibilities of collecting accounts receivable using artificial intelligence. The characteristics of receivables are described. The process of collecting receivables is defined using the automated platform Emagia, equipped with artificial intelligence. Accounts receivable indicators are characterized and the accounts receivable turnover ratio and daily sales rate are calculated. Opinions are formulated based on the conducted research. Effective collection of receivables ensures that a company has the necessary funds for daily operations, pays its bills, and is able to invest in the future. Improving the receivables collection process underpins every aspect of a company's strategy, from fundamental principles to the use of automated systems.*

Effective management of accounts receivable is a critical component of a company's financial sustainability. The analysis showed that although part of the company already uses automated systems and performs monitoring, there are still significant challenges in the receivables management process, such as: Insufficient effectiveness of the control mechanism, the need to improve payment terms, and incomplete formalization of financial policy. Artificial intelligence allows companies to effectively manage financial flows, reduce overdue debt, and improve liquidity ratios.

Key words: accounts receivable; artificial intelligence; cash flow; days overdue; turnover ratio;

JEL Classification. M41, M42, O32, O33, G32

I. INTRODUCTION

In the complex world of finance, accounts receivable represent a vital factor for a company, on which any business depends. Simply put, accounts receivable is the amount of money owed by a customer for a product or service received but not yet paid for. Accordingly, the receivable is the credit that a business offers to its customers. (Smith, 2021) Effective management of accounts receivable helps maintain business stability and generate cash flow. Accounts receivable is a key asset on a company's balance sheet, representing a promise of future cash. Although it is recognized as an asset and the company expects to collect it within 30 to 90 days, its value is only realized when the cash is actually collected. It is necessary to assess the company's liquidity and financial condition.

The process of collecting receivables is the mechanism by which a company converts its assets into working capital. Effective collection of receivables ensures that a company has the necessary funds for daily operations, pays its bills, and is able to invest in the future. Improving the receivables collection process underpins every aspect of a company's strategy, from fundamental principles to the use of automated systems. The company's goal is to transform accounts receivable collection from reactive, frustrating tasks to practical, predictable, and highly effective tasks.

II. RESEARCH METHODOLOGY

Main characteristics of accounts receivable— Accounts receivable are important to companies because:

- Directly related to the company's operations and financial stability (Kumar, 2019).
- Affects the company's capital and financial plan (Brown and Zhang, 2020)

- Effective management is needed to reduce late or incomplete payments. (Wang, 2019).

Accounts receivable have a number of characteristics that determine not only the financial stability of the company, but also the quality of customer relations. These are:

- Short-term asset – Accounts receivable are expected to be converted into cash within a few months
- Legally enforceable – The company has a legal right to collect the debt
- Essential for cash flow – Accounts receivable help a business maintain liquidity and operations
- Recorded in the books – Accounts receivable appear in financial statements as current assets. (Choudhury, 2021).

Defining the process for collecting receivables–In the process of developing accounting, technological progress has played an important role in automating data processing. We have identified the stages of accounting automation:

Early Stage – (19th – 20th centuries) This stage is associated with the use of mechanical calculators and punched cards. This technology simplified calculations and reduced the time spent, although a large part of the data entry and processing still depended on human resources. (Cortada, 1993).

Computer Age (mid-20th century) – The development of computers made it possible to process accounting information electronically. These systems could process large amounts of financial data and automatically generate various reports. However, such systems were expensive and required specialized IT knowledge to manage. (Campbell-Kelly and Aspray, 2004).

Personal computers and early software (late 20th century).- The spread of personal computers and the creation of user-oriented accounting programs, software such as QuickBooks and others have greatly expanded the capabilities of small and medium-sized businesses. These programs automate basic accounting operations, general ledger management, and financial reporting. (Hall, 2016).

Internet and Cloud Technologies (21st Century).-The development of the Internet and cloud technologies has made the use of accounting systems even more flexible and accessible. Cloud-based accounting software provides remote access to data, real-time collaboration, and reduces the costs of maintaining technical infrastructure. (Davenport and Kirby 2016).

Artificial Intelligence, Machine Learning, and RPA (Modern Stage).-At the modern stage, accounting automation is integrated with artificial intelligence (AI), machine learning (ML), and robotic process automation (RPA). These technologies provide intelligent automation, through which accounting data is processed and processes are adapted to changes. Accounting activities are gradually moving to a more analytical and strategic level.

Automation of receivables managed by artificial intelligence– “Emagia” is a platform designed to help businesses of all sizes overcome challenges and achieve financial success. (www.emagia.com) It enables the creation of automated data-driven approaches from manual processes. The platform offers intelligent work lists that prioritize receivable collection opportunities. Automated processes ensure timely response. The platform can create a collaborative portal that simplifies communication with customers. The artificial intelligence-driven system allows for the identification of receivables accounts at risk, it can predict payments and develop strategies for how the company will collect cash. The Emagia platform reduces the period for collecting receivables and bad debts. All this allows the company's finance team to be freed from these operations and use their capabilities for strategic decisions of the company. Accounts receivable automation directly impacts a company's cash flow and liquidity. Emagia creates an intelligent cash application for the company that automatically links paid and unpaid invoices, and can detect partial payments and uncleared transfers. Artificial intelligence can prioritize debt collection efforts based on payment history and customer risk. Automation helps identify customer disputes and unauthorized charges, categorizes them, and routes them to the company’s internal team for faster resolution. The company is creating an opportunity to minimize the risk of revenue loss. Automated tools can integrate with internal data and credit bureaus to provide real-time credit risk assessment for new and existing customers, ensuring their dynamic ratings.

III.RESEARCH RESULTS

Accounts receivable efficiency measurement indicators– Companies use performance measures to measure how well a business collects its accounts receivable on average over a period of time. Financial leaders look at several key accounts receivable ratios to assess cash flow. These include:

- Accounts receivable turnover

- Daily sales ratio DSO
- Average days overdue ADD
- Cash conversion cycle CCC Collection efficiency index

Accounts receivable turnover ratio – is a financial indicator that measures how effectively a company collects receivables from customers. The ratio indicates that the company is collecting payments promptly, which is favorable for the company's cash flow and overall financial stability. (Brigham and Houston, 2018)

The accounts receivable turnover ratio is important for businesses, specifically:

Cash flow management – A high ratio means cash is flowing into the company quickly, improving liquidity and the company's ability to easily handle unexpected expenses and quickly pay off existing liabilities.

Credit Policy Effectiveness – Evaluates how reasonable the credit terms of each company are.

Bad Debt Risk – Manual collection increases the risk of bad debts, which can impact profits, but a healthy ratio reduces the risk.

Investor and Lender Confidence – A strong accounts receivable turnover indicates a well-run business, making it more attractive to investors and lenders.

The accounts receivable turnover ratio is calculated as follows: Accounts receivable turnover ratio = Net credit sales/Average accounts receivable. (Weygandt, Kieso, et al 2016). Net credit sales are the total revenue from sales minus all allowances and discounts. Average accounts receivable is the average of the accounts receivable paid by customers to the company during a specific period. A low ratio is always a sign of concern that the company has various operational and financial problems and requires immediate attention. When a company has an extremely high ratio, it requires a review of the company's credit policy. Credit terms are too strict, rejecting creditworthy customers who need more flexible payment options. Aggressive collection practices can damage customer relationships. This can lead to customer dissatisfaction and even loss of business. Too strict terms can deter potential customers, and a lenient attitude can increase bad debts and create cash flow problems.

The net credit sales of the company "Aisi" for the year 2025 were 1,000,000 GEL. The opening balance of accounts receivable is 120,000 GEL, the closing balance is 220,000 GEL. The average accounts receivable is $(120,000 + 220,000)/2 = 170,000$ GEL. And the company's accounts receivable turnover ratio = $1,000,000/170,000 = 5$. The company has collected its accounts receivable 5 times. Based on this indicator, it can be said that the company needs an average of 73 days to collect its accounts receivable. Specifically, it indicates an average turnover rate. In some cases, the company experiences payment delays. Therefore, we believe that the company should strengthen payment control mechanisms, effectively manage credit policy, and ensure timely financial communication with clients, which will help accelerate the debt collection process and improve the liquidity process.

It is important for companies to have an acceptable turnover ratio. This is determined by automating invoices. The Dunning process also helps to have an acceptable turnover ratio, which involves developing a systematic approach to follow-up actions. Increase communication as soon as an invoice is due. This means: sending an email if the invoice is 1 day late, a phone call if it is 15 days late, and a formal letter if it is 30 days late. Offering discounts is also important for the receivables ratio, for example, offering a 2% discount on a net amount of 2/10 n/30. Although it reduces revenue, both the accelerated cash flow and the receivables turnover ratio can be valuable to the company. Extended credit lines and exclusive offers are desirable for timely payers. The strategy of influencing customer behavior is effective in calculating the receivables turnover ratio. (Jerry, Donald et al 2016)

Thus, the accounts receivable turnover ratio is a dynamic indicator influenced by a combination of internal policies and external market forces, which is the key to effective management.

2) The daily sales outstanding ratio (DSO) is used to assess the performance of accounts receivable. It measures the average number of days it takes a company to receive payment after making a credit sale. CFOs and leaders monitor this ratio to understand how effectively a company is converting credit sales into cash. The value of the daily sales indicator is presented in Table 1.

Table 1 Daily sales rate.

Term	Definition
Days of Sales Outstanding (DSO).	A financial metric that measures the average number of days it takes a company to collect credit sales.
Formula	$DSO = (\text{Accounts Receivable} : \text{Total Sales Credit}) \times \text{number of days}$
Target	Measures the efficiency of accounts receivable and cash flow performance.

Lower DSO	Indicates faster withdrawals and liquidity
Higher DSO	Indicates late payments, disputes, and inefficient collection.

Source: Compiled by the authors

Average daily sales vary across industries and business models. Its industry-specific standards are presented in Table 2.

Table 2. DSO standards by industry

Industry	Typical DSO range
Software SaaS	45–60 days
Manufacturing	30–50 days
Retail	10–30 days
Construction	60–90 days
Wholesale Distribution	40–70 days

Source: Compiled by the authors

Companies with short sales cycles and fast payment terms tend to have lower DSO. If a company's daily sales rate exceeds the industry standard, AI-driven accounts receivable automation can help companies accelerate collections and improve cash flow. Using the example of the company "Aisi", we calculated the number of sales days in 2025, which is presented in Table 3.

Table 3 Sales Days Indicator for the Company "Aisi" in 2025

Metric	Cost
Total credit sales	1 000 000
Accounts receivable	220 000
Days in the period	91
Calculated DSO	20 days

Source: Compiled by the authors

The company's daily sales ratio is 20, which indicates that the company has stable daily sales, which has a positive impact on the continuity of income and cash flow planning. This ratio allows the company to more effectively plan financial resources, determine the period for collecting receivables, and assess the payment behavior of customers.

Average Days Overdue (ADD) is a measure of how many days customers are late with payments compared to the agreed credit period. (Eugene , Brigham et al 2018) This indicator is used to assess the quality of receivables and payment discipline. An increase in ADD indicates problems with late payments, while a low value means that customers are more timely in fulfilling their financial obligations. The use of artificial intelligence helps reduce this indicator, in particular, it is possible to predict payment risks, provide automatic reminders, quickly identify overdue invoices, and analyze customer payment behavior.

Cash Conversion Cycle (CCC) – is a financial indicator that shows how many days it takes a company to convert resources invested in operating processes into cash. A low indicator indicates effective financial management, while a high indicator indicates cash flow problems. Artificial intelligence will help reduce this indicator, and as a result of the reduction, the process of collecting receivables will improve, optimize inventory management, provide cash flow forecasting, and automate financial operations.

Collection Efficiency Index (CEI) – This is a percentage that shows what percentage of the revenue a company has collected during a specific period. If the ratio is close to 100%, this means that the receivables collection process is very effective. A decreasing ratio means that the company needs to review its revenue collection strategies.

The main objective of our research is to analyze the processes of receivables management in Georgian companies. Information was collected from 120 companies through an online survey. The participants in the research were accountants, financial directors and financial managers from private, state and non-governmental organizations. The main finding is the use of artificial intelligence in the process of receivables collection. Also, discussing effective strategies using artificial intelligence to reduce payment delays.

The results of the research conducted are as follows:

- In what field does your company operate in the Georgian market? – 55% of respondents are in the field of production, 23% in the field of trade, 12% in the field of business, 10% in various fields.

- What position do you hold in the company? 51% of respondents are accountants, 20% are financial directors and 29% are financial managers.
- The next question was whether the company has a formal policy for managing receivables. 40% of respondents said they do, 22% said they do not, 20% were unsure, and 18% said they do so partially.
- How often is receivables monitored? 45% of respondents said they do it daily. 30% said they do it weekly, 23% said they do it monthly, and 2% rarely.
- What is the most common reason for late payment in your company? 45% of respondents indicate that the client's financial problems, 34% lack of control, 21% ineffective payment terms.
- How many days does it take on average to collect receivables, 37% indicate that it is up to 30 days, 25% indicate that it is 30–60 days, 18% indicate that it is 60–90 days, 12% more than 90 days.
- Does your company use automated systems to manage receivables? 45% say they do, 17% don't, 38% use them partially
- In your opinion, which process improvement could be most important from the use of artificial intelligence? 41% say it's risk assessment, 23% payment forecasting, 24% automatic reminders, 12% customer behavior analysis.
- In your opinion, what is the barrier to implementing artificial intelligence in your company? 66% say financial resources, 23% lack of data, 11% employee resistance
- In your opinion, what factors influence the receivables turnover ratio? 35% say the financial management system, 33% control mechanism, 26% terms and conditions, 6% customer payment discipline.
- In your opinion, what is the reason for the increase in DSO? 42% mention the economic environment, 25% ineffective credit policy, 17% late customer payments and 16% weak control system.
- In your opinion, which methods are the most effective for reducing overdue debts? 44% mention offering a payment schedule, 30% payment reminders, 26% telephone communication.
- In your opinion, which factors influence CCC? 35% mention sales strategy, 22% inventory management, 23% receivables management, 20% accounts payable policy.

Based on the results of the study, it can be said that effective management of receivables is a key component of the financial sustainability of companies. The analysis showed that although some companies already use automated systems and carry out monitoring, there are still significant challenges in the process of managing receivables, such as: insufficient effectiveness of the control mechanism, the need to improve payment terms, and incomplete formalization of financial policy. In addition, the study confirmed that the use of artificial intelligence will significantly improve the process of managing receivables. In particular, risk assessment, payment forecasting, customer behavior analysis and automated communication directions. Artificial intelligence allows companies to effectively manage financial flows, reduce overdue debts and improve liquidity indicators.

Accordingly, in the modern business environment, the integration of artificial intelligence into financial management is an important factor in increasing the competitiveness and financial efficiency of companies.

IV. CONCLUSION

Thus, the long-term viability, reputation, and financial stability of a company are determined by the correct policy for collecting receivables. Specifically:

- Effective collection of receivables ensures a stable and predictable inflow of cash into the company. Cash inflow allows the company to meet its financial obligations, while delays in collection of receivables will lead to a liquidity crisis.
- The longer an invoice remains unpaid, the less likely it is to be collected. This is a well-documented business reality. A systematic billing process with a quick follow-up response significantly reduces the write-off of bad debts. This allows the company's bottom line to be protected.
- Debt collection is often perceived as a confrontational activity. However, it doesn't have to be. A professional and compassionate debt collection process can actually strengthen relationships with customers. By setting clear payment terms, offering multiple payment options, and communicating respectfully, a company builds trust and demonstrates commitment to its customers without interruption, even when it comes to payments.
- For receivables collection, it is important to develop proven strategies from the initial customer credit check to the final payment statement. Develop clear and consistent credit and collection policies.

Based on the results of the study, we consider it appropriate to consider the following recommendations:

- It is desirable for companies to implement a clear and specific policy for managing receivables, which correctly defines control mechanisms. It is necessary to use financial instruments and improve the receivables monitoring system.

- It is advisable for companies to gradually implement artificial intelligence-based systems that will help predict payments and assess risks. It is important to use automatic reminders based on artificial intelligence to reduce overdue debts.

- Companies should ensure that databases are improved and financial information is properly collected, which is a prerequisite for the effective use of artificial intelligence. It is important to retrain employees in the use of modern technologies and digital financial tools.

Finally, manually processing and collecting receivables is an outdated approach. The role of technology and automation is huge in today's digital age. The use of artificial intelligence provides a clear picture of who owns a company's receivables and where there are bottlenecks in the collection process. Technology is not just a “nice to have” but is essential for scalable and efficient payment collection processes.

V. REFERENCES

1. Smith, J. (2021). Artificial Intelligence in Financial Operations. New York: Finance Press, pp. 34
2. Kumar, R. (2019). Predictive Analytics in Accounts Receivable Management. *International Journal of Accounting*, 7(2), p. 101–118
3. Brown, L., & Zhang, W. (2020). Machine Learning for Debt Collection. *Journal of Financial Technology*, 12(3), pp. 45–60
4. Wang, X. (2019). Risk Management Through AI. *International Finance Review*, 14(2), pp. 55–70.
5. Choudhury, P. (2021). AI in Banking Operations. *Financial Innovation Journal*, 5(1), pp. 33–47.
6. Cortada, J. W. (1993). Before the Computer: IBM, NCR, Burroughs, and Remington Rand and the Industry They Created, 1865–1956. Princeton University Press, pp. 112–118.
7. Hall, J. A. (2016). *Accounting Information Systems* Boston, MA: Cengage Learning 9th ed., pp. 60–64
8. Davenport, T. H., & Kirby, J. (2016). Only Humans Need Apply: Winners and Losers in the Age of Smart Machines. Harper Business, pp. 105–112.
9. Brigham, E. F., & Houston, J. F. (2018). *Fundamentals of financial management (15th ed., pp. 90–93)*. Boston, MA: Cengage Learning.
10. Weygandt, J. J., Kieso, D. E., & Kimmel, P. D. (2016). *Accounting principles (12th ed., pp. 713–715)*. Hoboken, NJ: John Wiley & Sons.
11. Jerry J. Weygandt, Donald E. Kieso & Paul D. Kimmel, *Accounting Principles*, 12th ed. (Hoboken: John Wiley & Sons, 2016), pp. 713–715.
12. Eugene F. Brigham & Joel F. Houston, *Fundamentals of Financial Management*, 15th ed. (Boston: Cengage Learning, 2018), pp. 91.
13. Romney, M. B., & Steinbart, P. J. (2018). *Accounting information systems (14th ed., pp. 30–35)*. Boston, MA: Pearson Education.
14. Appel, A. P., Oliveira, V., Lima, B. L. M., Malfatti, G. L., & Santana, V. F. de. (2019). Optimize cash collection: Use machine learning to predicting invoice payment. *arXiv*.
15. Ge, L. (2025). Artificial intelligence driven optimization of accounts receivable management in supply chain finance: An empirical study based on cash flow prediction and risk assessment. *Journal of Sustainability, Policy and Practice*, 1(2), pp. 110–120.
16. Kramarenko, A. (2024). The applicability of machine learning algorithms in accounts receivables management. *Journal of Applied Accounting Research*, 2, pp. 433–450. <https://doi.org/10.1108/JAAR-06-2023-0184>
17. Wang, X., Zhang, Z., Zheng, J., Ai, Y., & Wang, R. (2025). Debt collection negotiations with large language models: An evaluation system and optimizing decision making with multi-agent. *arXiv*.
18. Xiaoli, X., Othman, R. B., & Deng, W. (2026). AI driven optimization of debt collection efficiency in accounts receivable: An action research case study of DK Company. *International Journal of Academic Research in Economics and Management Sciences*, 15(1), 377–395. <https://doi.org/10.6007/IJAREMS/v15-i1/27477>
19. <https://www.emagia.com/ka/blog/accounting-automation/> (Last seen May 2026)
20. <https://www.ais.com> AIS Company Financial Statement for 2025 (Last seen May 12, 2026)