# CASH MANAGEMENT STRATEGY IN INCREASING COMPANY LIQUIDITY IN TIMES OF ECONOMIC CRISIS

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#### Abstract

This research aims to analyze effective cash management strategies in increasing company liquidity during economic crises. Economic crises often cause high uncertainty, decreased market demand, and increased operational costs which affect company survival. Therefore, proper cash management is very important to ensure companies can still meet shortterm financial obligations and maintain their operations. Based on existing literature studies, several cash management strategies that have proven to be effective include careful cash planning, strict management of receivables and payables, cutting operational costs, and efficient inventory management. This research also identifies key success factors, such as flexibility in cash management, diversification of financing sources, and the company's ability to adapt quickly to market changes. However, the company continues to face various challenges, such as difficulties in accessing external financing, decreasing revenues, and increasing credit risks which hinder optimal cash management. Thus, this research concludes that companies that can implement cash management strategies that are adaptive and responsive to market dynamics will have a greater chance of surviving and maintaining liquidity during the economic crisis.

Keywords: Cash Management, Company Liquidity, Economic Crisis

### **INTRODUCTION**

Cash management is an important aspect of company financial management. Well-managed cash can ensure smooth company operations, payment of short-term obligations, and support company growth and development (Tanusi & Tauk, 2023). In the context of the economic crisis, the role of cash management becomes increasingly vital because of the uncertainty that occurs in the market and the decline in purchasing power which can affect the company's cash flow (Kusumawardhani, 2022).

Therefore, companies that are unable to manage their cash efficiently are at risk of facing difficulties in meeting their financial obligations, and even risk experiencing bankruptcy.

Economic crises are often characterized by recessions, sharp price fluctuations, and instability of financial markets and markets for goods and services. In these conditions, companies face big challenges to maintain their liquidity. The economic crisis reduces company revenues due to decreased market demand, while at the same time it can increase operational costs due to rising raw material prices or interest rates (Goso, 2022). Therefore, companies must be able to carry out careful cash management to ensure that available funds can meet urgent operational needs, while avoiding unnecessary expenses.

Companies that do not have mature cash planning will have difficulty facing the economic crisis. This can affect a company's ability to pay debts, pay employees, or even to invest in important operational activities. Low liquidity can cause companies to be forced to look for emergency funding sources at high costs or experience difficulties in obtaining credit (Gunawan et al., 2024). This will of course worsen the company's financial position and prolong the post-crisis recovery period.

One of the most effective ways to maintain liquidity during an economic crisis is to implement appropriate cash management strategies. This strategy includes steps to manage cash inflows and outflows optimally, speed up cash receipts, postpone non-urgent expenditures, and cut non-essential costs (Wisan, 2023). Apart from that, companies can also consider using technology to increase efficiency in cash management, such as software-based cash management systems that allow companies to monitor cash flow in real-time.

Good cash management in times of crisis should not only focus on meeting short-term obligations, but also on long-term financial planning. In the midst of the uncertainty created by the economic crisis, good cash planning can help companies plan cash reserves to cover longer periods. This also helps companies minimize liquidity risk, which can make things worse when economic uncertainty occurs (Adiputra & Nataherwin, 2022).

The main objective of this research is to understand how cash management strategies can increase a company's liquidity during an economic crisis. By understanding and implementing the right strategy, companies can reduce the risk of cash shortages and maintain operational continuity amidst economic uncertainty (Sari et al., 2023). This research also aims to explore

best practices in cash management that can be implemented by companies to face the economic crisis, as well as providing insight for business practitioners and academics regarding ways that can be done to increase company liquidity in difficult conditions.

Furthermore, this research will examine how companies can utilize various techniques and approaches in cash management, such as tighter cash planning, cutting costs, and using technology to optimize cash management (Realdi & Siregar, 2022). Thus, it is hoped that the results of this research can contribute to the development of cash management theory and provide practical recommendations for companies that want to increase their liquidity during times of economic crisis.

This research aims to provide a clearer picture of how companies can survive and develop despite facing major challenges posed by the economic crisis. Through implementing appropriate cash management strategies, companies can not only maintain their liquidity but can also adapt to rapidly changing and dynamic market conditions.

#### **RESEARCH METHOD**

The study in this research is qualitative with literature. The literature study research method is a research approach that involves the analysis and synthesis of information from various literature sources that are relevant to a particular research topic. Documents taken from literature research are journals, books and references related to the discussion you want to research (Earley, M.A. 2014; Snyder, H. 2019).

## **RESULT AND DISCUSSION**

## **Analysis of Effective Cash Management Strategies**

Effective cash management strategies during times of economic crisis are very important for companies to ensure operational continuity and maintain liquidity. One of the main strategies is careful cash planning. Companies need to prepare realistic and reliable cash flow projections to precisely monitor short-term and long-term cash needs (Sharma, 2022). With careful planning, companies can prioritize the most important expenses and postpone non-urgent expenses, thereby avoiding cash shortages that can disrupt operational continuity.

Apart from that, strict receivables management is an effective strategy in increasing liquidity during times of crisis. Companies must ensure that existing receivables can be collected immediately by speeding up the collection process and establishing stricter payment policies (Chernykh et al., 2022). In crisis conditions, accelerating the collection of receivables will provide much-needed additional cash to meet short-term obligations and support company operations. Efficient billing, including more intensive communication with customers, can significantly improve a company's cash flow.

The next strategy is to postpone debt payments wisely. Although it is not recommended to delay debt payments carelessly, in conditions of economic crisis, companies can negotiate with creditors to extend payment terms or restructure debts (Alrashedi, 2024). This way, companies can keep cash available for longer, which will help increase liquidity in the short term. This must be done carefully to avoid contract violations that could damage the company's reputation in the eyes of creditors.

Inventory management is also an important part of an effective cash management strategy in times of crisis. Companies need to review inventory levels and ensure that they are not holding too much unsold inventory. More efficient inventory management can reduce storage costs and allow companies to utilize existing cash for more urgent needs (Triyatno, 2022). Therefore, companies should consider just-in-time systems or other approaches to minimize waste in inventory management.

Cutting operational costs is also a crucial step in increasing company liquidity. In times of crisis, companies must prioritize expenses that are truly important and reduce costs that are not urgent. Cost cutting can be done through reducing fixed costs, renegotiating contracts with suppliers, or reducing spending on marketing and activities that do not directly contribute to short-term revenue. By reducing operational costs, companies can improve profit margins and increase available cash (Karaş, 2022).

Diversifying financing sources is a strategy that can help companies maintain their liquidity during a crisis. In the midst of economic uncertainty, companies must not rely on just one source of financing (Mackenzie & Njunwamukama, 2024). For example, companies can consider looking for funding alternatives such as short-term loans, bank credit, or even crowdfunding, if possible. This diversification provides greater financial flexibility for companies in dealing with cash flow fluctuations that occur during the economic crisis.

Overall, implementing these strategies simultaneously can help companies survive and maintain liquidity in the midst of an economic crisis. A combination of good cash planning, effective management of receivables and payables, and cost reduction can ensure that a company has sufficient resources to get through difficult times and continue operating stably.

Successful cash management during an economic crisis depends on a number of key factors that can influence the effectiveness of the strategies implemented. One of the most important factors is proper and proactive cash planning. Companies must prepare realistic cash projections and cover the worst scenarios that may occur during a crisis (Rahmania & Maulana, 2023). These projections should be updated periodically to reflect changing economic conditions. With careful planning, companies can anticipate potential cash shortages and respond quickly if profound changes in cash flow occur.

The next factor is the ability to manage cash flow with flexibility. In times of crisis, rapid changes in market demand and operational costs can affect a company's cash flow. Therefore, companies need to have flexibility in managing cash to adapt to changing conditions (Yusri et al., 2024). This includes the ability to accelerate or delay payments, review receivables and payables policies, and renegotiate contracts to obtain more favorable terms. Flexibility in cash management allows companies to continue to meet financial obligations without losing control of cash flow.

Efficient management of receivables and payables is also an important factor in successful cash management during a crisis. Speeding up the receivables collection process and reducing the level of bad debts is very important to ensure cash continues to flow. On the other hand, companies must also be able to negotiate with creditors to extend the debt repayment period if necessary (Pinto, 2024). This will give the company more room to use existing cash for more urgent operations, while maintaining good relations with creditors. Efficient management of receivables and payables also prevents companies from getting caught in liquidity difficulties which can be detrimental.

Efficient inventory management is another factor that determines success in maintaining liquidity in times of crisis. During an economic crisis, many companies experience a decrease in product demand, which can lead to inventory buildup (Calhoun, 2024). Therefore, companies must be able to adjust inventory levels to more realistic demand projections, so that no funds are tied up in unsold inventory. Optimizing inventory management not only reduces carrying costs, but also allows companies to shift funds to areas that are more critical to business continuity, such as operational costs or urgent investments.

In addition, the ability to effectively reduce operational costs plays an important role in maintaining a company's liquidity during a crisis. Cutting non-essential costs, such as reducing labor or saving energy, can increase profit margins and make room for better cash management. However, cost cuts must be done wisely so as not to disrupt the company's core operations (Bakhsh, 2024). Therefore, companies that are successful in managing cash during a crisis are those that can achieve cost efficiency without sacrificing the quality of the products or services they offer.

The ability to access alternative sources of financing is key to overcoming the economic crisis. Reliance on a single source of financing, such as bank loans, can greatly limit a company's flexibility, especially when financial market conditions worsen (Wang, 2023). Therefore, companies that have access to multiple financing channels, such as short-term loans, venture capital financing, or crowdfunding, are better able to overcome cash shortages that occur during crises. Diversification of financing sources provides companies with greater cash reserves and ensures operational continuity amidst economic uncertainty.

Overall, these key factors play an important role in ensuring companies can survive and maintain liquidity amidst the economic crisis. With good planning, flexible cash management, and efficient management of receivables, payables, and inventory, companies can better weather economic uncertainty and maintain their financial stability.

## **Evaluation of the Impact of the Economic Crisis on Cash Strategy**

Economic crises often have a significant impact on a company's cash management strategy. One of the biggest impacts is a decrease in market demand, which directly affects the company's revenue stream. When a crisis occurs, consumers tend to reduce their spending, which results in a decrease in sales. This causes a decrease in cash inflow which can disrupt the company's ability to meet short-term obligations (Hassaan & Mohamed, 2024). Therefore, previously effective cash management strategies, such as cash planning based on optimistic sales projections, can be hampered by market uncertainty and decreased demand.

Apart from that, fluctuations in operational costs are also a big challenge during the economic crisis. For example, a crisis may lead to increases in raw material prices, labor costs, or even higher interest rates on short-term loans. This increases operational costs which in turn worsens the company's cash management (Pinto, 2024). In these conditions, cash

management strategies that focus on cost savings and debt management become increasingly important. However, if costs increase faster than the company's ability to control expenses, then existing cash management strategies may not be sufficient to maintain liquidity.

Access to external financing has also become increasingly difficult amidst the economic crisis. Banks and other financial institutions tend to be more cautious about lending during times of economic uncertainty, which limits companies' access to external financial resources. In this situation, companies that depend on external financing to maintain their liquidity will face great difficulties (Diene, 2023). Therefore, cash management strategies that rely on short-term loans or external financing should be re-evaluated, and companies need to look for ways to increase liquidity through internal resources, such as cutting costs or more efficient management of receivables.

Additionally, an economic crisis can lead to increased credit risk. During the crisis, many of the company's customers or business partners also faced financial difficulties, potentially causing them to fail to meet their payment obligations. This risks exacerbating liquidity problems for companies that depend on receivables to maintain their cash flow (Wahab, 2023). Therefore, an effective cash management strategy should include stricter policies on receivables, as well as efforts to diversify the customer base or business partners to become less dependent on high-risk parties.

Debt renegotiation is an important factor in managing cash during a crisis. When revenues decrease and costs increase, a company may not be able to meet its debt obligations on schedule. In conditions like this, renegotiation with creditors to extend payment terms or restructure debt is very important to ensure the continuity of company operations. If the company is unable to conduct effective negotiations, the existing cash management strategy will fail to maintain the company's liquidity and can trigger solvency problems (Aguilar et al., 2023).

Market uncertainty during a crisis makes long-term strategies difficult to implement with certainty. Many companies rely on financial projections and market analysis to plan future expenses and revenues. However, in the midst of a crisis, these projections become less accurate, and companies may have to make financial decisions that are more reactive than proactive (Sharma, 2022). Therefore, a flexible and adaptive cash management strategy is needed to enable companies to respond to rapid market changes and maintain liquidity even in very dynamic and uncertain conditions.

Overall, an economic crisis can drastically change the dynamics and effectiveness of cash management strategies implemented by companies. The impact of decreasing market demand, cost fluctuations, difficulties in accessing external financing, and increasing credit risk require companies to adapt their cash management strategies to more challenging conditions. Therefore, companies that can adapt quickly to these changes and modify their cash strategies according to the new circumstances will have a better chance of surviving and thriving even in times of crisis.

One of the main weaknesses companies face in managing cash during an economic crisis is a significant decline in revenue. In times of crisis, many companies face a drastic decline in demand, both from domestic and international consumers (Jadhav, 2022). This leads to a reduction in revenue which directly affects the company's cash inflow. When revenues decline, companies often struggle to maintain sufficient cash to cover operating costs and short-term liabilities. Without stable earnings, previously effective cash management strategies become less relevant, and companies must look for alternative ways to maintain liquidity.

Difficulty in predicting cash flows is also a big challenge. Economic crises bring high levels of uncertainty, making cash projections much more difficult to do accurately. Companies that previously could rely on seasonal trends or stable projections to plan their cash needs now have to deal with highly volatile conditions. This uncertainty causes difficulties in cash management because companies may not be able to prepare sufficient funds to cover urgent expenses, even if they have carried out careful planning. Companies that cannot adjust cash projections to changing market conditions risk experiencing severe cash shortages (Hassan, 2023).

The next challenge is the difficulty in managing receivables and payables. When the financial condition of customers or business partners is also disrupted due to a crisis, the level of bad debts will increase. Companies that depend on receivables to fund their operations will face great difficulty in ensuring a stable cash inflow (Asante, 2024). Additionally, companies that have short-term debt may also have difficulty meeting their obligations due to declining revenues and limited access to external financing. Debt renegotiation or liability restructuring may be a solution, but this also involves reputational risks and losses in relationships with creditors.

Limited access to external financing is another major challenge faced by companies during the economic crisis. Many companies, especially small and medium ones, depend on external financing to meet short-term cash needs (Atakul, 2022)k. However, during a crisis, banks and financial institutions tend to tighten their credit policies, increase interest rates, and limit the amount of loans provided. This makes companies that need fresh funds to overcome cash shortages face major obstacles in obtaining loans. Reliance on limited external financing can exacerbate liquidity problems and make it difficult for companies to survive.

Challenges in inventory management are also a weakness that companies often face during economic crises. When market demand declines, many companies find it difficult to adjust their inventory levels to actual needs. Too much unsold inventory can tie up a company's cash, while a lack of inventory can disrupt a company's ability to meet existing customer demand. Managing inventory efficiently becomes very difficult in crisis conditions, where commonly used demand projections become less accurate and risk increasing carrying costs or losses from obsolete inventory (Koilakonda, 2024).

The inability to adapt quickly to changing market conditions is a major challenge for many companies. Economic crises often change market conditions drastically in a short period of time, and companies that cannot adapt quickly will have difficulty managing their cash. The inability to respond to market changes, such as decreased demand or increased costs, can lead to poor decisions in cash management, such as delaying debt payments or failing to meet operational obligations (Alsaadouni, 2024). In an economic crisis, companies need a more flexible and responsive cash management strategy to maintain liquidity and survive.

Overall, the challenges and weaknesses faced by companies in managing cash during the economic crisis are very diverse, ranging from reduced income, difficulties in predicting cash flows, to limited access to external financing. All of these challenges require companies to have a more adaptive, flexible and proactive strategy in responding to changing market dynamics in order to maintain liquidity and survive in a situation full of uncertainty.

# **CONCLUSION**

This research shows that effective cash management is very crucial in increasing company liquidity, especially during times of economic crisis. Strategies that have proven effective include careful cash planning, tight management of receivables and payables, and prudent cuts in operational costs. In addition, flexibility in cash management and the ability to adapt to

changing market conditions are key factors in maintaining company liquidity during the crisis. Efficient inventory management and access to alternative sources of financing are also critical to ensuring operational continuity.

Overall, companies that can identify and implement appropriate cash management strategies, while considering economic uncertainty, have a greater chance of maintaining liquidity and surviving an economic crisis. However, challenges such as decreasing income, difficulties in managing receivables and payables, and limited access to external financing must be faced with a more adaptive and responsive approach. With efficient cash management, companies can increase their financial resilience in facing difficult times.

#### REFERENCES

- Adiputra, I. G., & Nataherwin, N. (2022). The Effects of Liquidity, Company Growth, and Net Working Capital on Corporate Cash Holding Among Manufacturing Companies Listed in Indonesia Stock Exchange During 2015—2020. Advances in Economics, Business and Management Research, Query date: 2025-04-26 13:00:25. https://doi.org/10.2991/aebmr.k.220501.009
- Aguilar, B., Pain, M., & Spieler, A. C. (2023). Investing Surplus Cash and Short-Term Borrowing. Working Capital Management, Query date: 2025-04-26 12:53:04, 165–182. https://doi.org/10.1142/9789811259661\_0008
- Alrashedi, A. K. (2024). The Key Sustainable Strategies Criteria for Effective Human Resource Management Practices. Query date: 2025-04-26 12:53:04. https://doi.org/10.20944/preprints202404.1571.v1
- Alsaadouni, D. (2024). Effective Patient Engagement in Private Healthcare Institutions in Riyadh: An Analysis of Management Strategies. International Journal for Scientific Research, 3(8), 96–134. https://doi.org/10.59992/ijsr.2024.v3n8p4
- Asante, E. (2024). How to Excel as a Cross-Functional Administrator: Key Strategies for Effective Management. Query date: 2025-04-26 12:53:04. https://doi.org/10.22541/au.172676458.88431395/v1
- Atakul, N. (2022). Exploring the cash flow management strategies of Turkish construction companies. *Journal of Construction Engineering, Management* & *Innovation*, 5(3). https://doi.org/10.31462/jcemi.2022.03168180
- Bakhsh, H. (2024). Retrospective Analysis of Effective Management Strategies for Primary Amenorrhea of Reproductive Age in Saudi Arabia. *Life*, 14(6), 772–772. https://doi.org/10.3390/life14060772

- Calhoun, F. S. (2024). Shortsighted Intervention Strategies. *Effective Threat Management*, Query date: 2025-04-26 12:53:04, 88–90. https://doi.org/10.4324/9781003543282-17
- Chernykh, E. A., Marcosian, Z. S., & Shchetinina, N. A. (2022). To effective cash management among youth. Economic Development Research Journal, 1, 24–29. https://doi.org/10.54092/25420208 2022 1 24
- Diene, A. (2023). Leadership Strategies for Effective Diversity Management. Advances in Human Resources Management and Organizational Development, Query date: 2025-04-26 12:53:04. https://doi.org/10.4018/979-8-3693-1050-2
- Earley, M. A. (2014). A synthesis of the literature on research methods education. Teaching in Higher Education, 19(3), 242-253.
- Goso, G. (2022). The Influence of Capital Structure, Liquidity, and Company Size on Sulselbar Bank's Profitability. Enrichment: Journal of Management, 12(4), 2847–2853. https://doi.org/10.35335/enrichment.v12i4.745
- Gunawan, R., Susanto, J., Pratiwi, C., Wulandari, B., & Habibie, M. (2024). THE INFLUENCE OF CAPITAL STRUCTURE, CASH TURNOVER, LEVERAGE, LIQUIDITY, COMPANY ACTIVITIES, AND COMPANY SIZE ON PROFITABILITY IN MANUFACTURING COMPANIES LISTED ON THE INDONESIAN STOCK EXCHANGE. International Journal of Economics, Business and Accounting Research (IJEBAR), 7(4). https://doi.org/10.29040/ijebar.v7i4.12086
- Hassan, A. (2023). Mitigating Cost Overruns: Effective Strategies in Construction Management. Query date: 2025-04-26 12:53:04. https://doi.org/10.31219/osf.io/m853z
- Jadhav, Dr. P. H. (2022). IMPACT OF CASH MANAGEMENT MOTIVES, STRATEGIES AND TECHNIQUES ON PARTNERSHIP FIRMS IN MIRAJ MIDC FIRMS. INTERANTIONAL JOURNAL OF SCIENTIFIC RESEARCH IN ENGINEERING AND MANAGEMENT, 6(12). https://doi.org/10.55041/ijsrem17301
- Karaş, E. (2022). Sustainable and Effective Management Strategies in Cotton Cultivation. Cotton, Query date: 2025-04-26 12:53:04. https://doi.org/10.5772/intechopen.104104
- Koilakonda, R. R. (2024). Enhancing User Experience During Organizational Transformations: Strategies for Effective Change Management and User Adoption. International Journal of Science and Research (IJSR), 13(6), 1244–1248. https://doi.org/10.21275/sr24618105618

- Kusumawardhani, D. N. (2022). The Role of Strategic Flexibility in Increasing Innovation (Case Study of Employee Promotion Strategies in Furniture Manufacturing Company). Proceeding of International Conference on Business, Economics, Social Sciences, and Humanities, 3(Query date: 2025-04-26 13:00:25), 186–191. https://doi.org/10.34010/icobest.v3i.134
- Mackenzie, D., & Njunwamukama, S. (2024). Strengthening Fintech Security in Uganda: An Analysis of Insider Threats and Effective Risk Management Strategies. *International Journal of Technology and Systems*, 9(2), 67–81. https://doi.org/10.47604/iits.2783
- Pinto, R. (2024). Smarter Public Relations with Artificial Intelligence: Leveraging Technology for Effective Communication Strategies and Reputation Management- A Qualitative Analysis. Revista Electronica de Veterinaria, Query date: 2025-04-26 12:53:04, 2141–2149. https://doi.org/10.69980/redvet.v25i1.1028
- Rahmania, N., & Maulana, H. (2023). Strategies for Improving Cash Waqf Fundraising Through Optimization of Cash Waqf Literacy in Indonesia. Contributions to Management Science, Query date: 2025-04-26 12:53:04, 523–532. https://doi.org/10.1007/978-3-031-27860-0\_48
- Realdi, R., & Siregar, B. A. (2022). THE EFFECT OF OWNERSHIP AND CASH FLOW ON COMPANY VALUE WITH DEBT POLICY AS MEDIATION IN PHARMACEUTICAL COMPANIES. Strategic Management Business Journal, 2(1), 16–25. https://doi.org/10.55751/smbj.v2i01.34
- Sari, T. R., Primasari, D., & Farida, Y. N. (2023). The effect of profitability, company size, leverage, liquidity, and free cash flow on dividend policy. Keynesia: International Journal of Economy and Business, 2(1), 22–34. https://doi.org/10.55904/keynesia.v2i1.668
- Sharma, V. P. (2022). Waste Monitoring and Management: Strategies, Innovations and Safety Considerations. Effective Waste Management and Circular Economy, Query date: 2025-04-26 12:53:04, 77–81. https://doi.org/10.1201/9781003231608-8
- Snyder, H. (2019¬). Literature review as a research methodology: An overview and guidelines. Journal of business research, 104, 333-339.
- Tanusi, G., & Tauk, A. K. (2023). Working capital management in increasing liquidity and profitability in the businessarea ftirta komodo manggarai drinking water. Enrichment: Journal of Management, 13(1), 514–521. https://doi.org/10.35335/enrichment.v13i1.1312
- Triyatno, G. (2022). SWOT ANALYSIS ON CASH WAQF FUNDRAISING STRATEGIES IN WAQAF-BASED EDUCATIONAL INSTITUTIONS. Journal of Islamic Economics and Philanthropy, 5(4), 283–283. https://doi.org/10.21111/jiep.v5i4.7658
- Wahab, M. A. (2023). Knowledge Chain Analysis for the Effective Facilities Management Strategies. Current Topics on Business, Economics and

- Finance Vol. 9, Query date: 2025-04-26 12:53:04, 116-125. https://doi.org/10.9734/bpi/ctbef/v9/6009b
- Wang, S. (2023). Multi-Period Portfolio Optimization under Cash-In Strategies. Advances in Economics, Management and Political Sciences, 3(1), 471–478. https://doi.org/10.54254/2754-1169/3/2022822
- Wisan, J. K. (2023). The Importance of Using The Statement of Cash Flows Assessing Company Liquidity. SSRN Electronic Journal, Query date: 2025-04-26 13:00:25. https://doi.org/10.2139/ssrn.4339305
- Yusri, N. F. I. B., Razi, N. F. H. B. A., & Suboh, N. N. N. B. (2024). SPAM Dynamics:
  A Comprehensive Analysis of Types, Challenges, and Effective
  Management Strategies. Query date: 2025-04-26 12:53:04.
  https://doi.org/10.36227/techrxiv.172115001.17650493/v1