

Managing the turnover rate of working capital (working capital turnover) using financial IT products

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Abstract: The article examines the importance and effectiveness of managing the turnover rate of working capital using financial IT products. The turnover of working capital is a key aspect of the management of short-term assets of the organization and affects its liquidity, profitability and competitiveness. This paper presents the theoretical foundations of working capital, analyzes the structure and turnover of working capital, and suggests ways to accelerate the turnover of working capital. Working capital is an important part of the company's property, since any business entity needs stocks of raw materials, materials, fuel, and components to carry out its activities. The presence of a certain amount of working capital at the enterprise is a necessary prerequisite for its normal functioning in a market economy. The topic is relevant, since there is a problem of the efficiency of working capital management at enterprises.

The purpose of this study is to analyze and evaluate the effectiveness of using financial IT products to control the turnover rate of working capital.

The tasks are:

- 1) to study the theoretical foundations of working capital, their turnover;
- 2) analyze the structure of working capital;
- 3) to analyze the turnover of working capital;
- 4) propose measures to accelerate the turnover of working capital.

The methodology includes an extensive analysis of scientific publications, articles and research on the topics of working capital turnover management, financial IT products and their impact on business processes. This will provide an overview of the current state and trends in this area.

Keywords: working capital, turnover of working capital, financial IT products.

Introduction

Working capital refers to the assets of an organization that are regularly replenished to support its ongoing operations, with at least one turnover within a year or one production cycle. In contrast to working capital, the turnover of working capital is a value characteristic [1]. Efficient management of working capital is a key aspect of financial stability and success for any enterprise. Working capital turnover is a metric that measures how quickly a company converts its working capital (such as inventory, accounts receivable, and accounts payable) into revenue. The higher this ratio, the more effectively working capital is utilized, leading to increased liquidity and profitability for the company.

With the advancement of information technologies (IT), entrepreneurs and financial managers gain access to numerous tools and solutions that enable efficient management of working capital turnover. Financial IT products have become indispensable instruments in this process, offering companies the ability to automate and optimize their financial operations.

Overview of Working Capital Turnover

As working capital is a part of the overall working capital, as seen in Fig.1, it is essential to provide a general characterization of working capital. Essentially, working capital represents the net current assets that an organization can deploy in its current business activities. It is calculated as the difference between current assets and current liabilities. Efficient management of this indicator is undoubtedly crucial, as it becomes an indispensable prerequisite for continuous functioning.

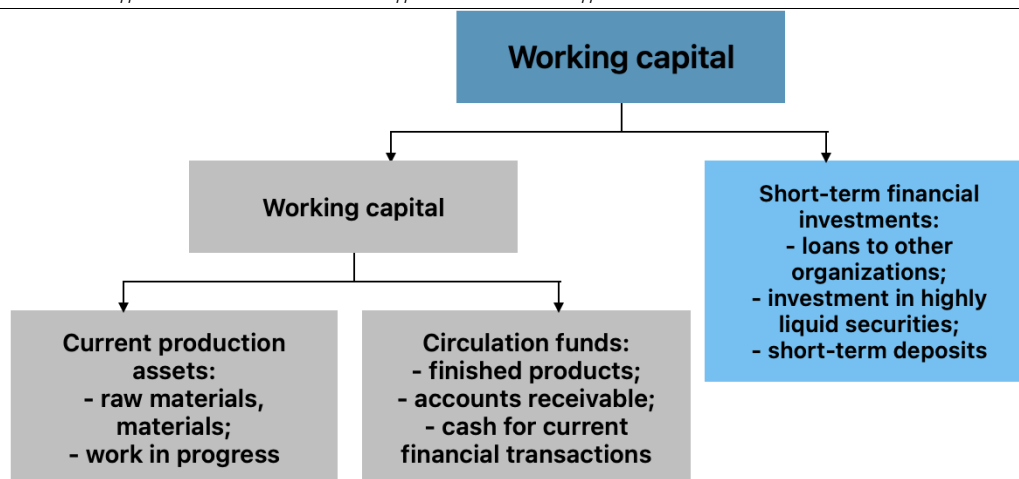


Fig. 1 Working capital structure

Managing working capital requires careful attention to the possible interactions of its components. Managing working capital remains a critical factor for effective company functioning because:

1. Some enterprises rely on working assets as a primary component of their total assets.
2. The growth of shareholder capital mainly depends on the company's ability to generate cash flows, not just the magnitude of accounting profit.
3. Ineffective working capital management, and consequently, improper liquidity management, is one of the main reasons leading to corporate bankruptcy.

Considering this, the main objectives of working capital management can be identified:

One of the two primary objectives of working capital management is ensuring liquidity. In the case of insufficient working capital, a company may encounter difficulties in timely payment of obligations, leading to delays in payments to employees, suppliers, and other creditors. Payment delays can impact the level of trust from personnel, prompt suppliers to withdraw discounts, and lower the company's credit rating in the eyes of credit rating agencies. Failure to meet payments (default) may require the forced liquidation of assets to settle debts with creditors.

Another key objective is to ensure profitability. Funds invested in working capital often bring low or even no returns. Therefore, a company with high levels of working capital risks not being able to achieve the return on invested capital required by investors.

When determining an appropriate level of working capital, it is necessary to find a balance between liquidity and profitability. However, the greatest challenge in achieving this balance lies in holding savings in the form of cash. Clearly, cash is highly liquid but has low returns, even when considering cash equivalents such as treasury bills. This is especially significant during periods of low interest rates. While the theoretically optimal level of working capital can be calculated, practical factors beyond the company's control may come into play. For instance, an unreliable supply chain can affect inventory levels. Nonetheless, a company should, at the very least, avoid extremes such as:

1. Going beyond reasonable operational limits, when working capital is insufficient to sustain normal operations. This situation can also be characterized as a capital shortage, evidenced by an increasing ratio of short-term financing to long-term financing.
2. Excessive capitalization or an excess of working capital, leading to low company efficiency [1].

After carefully considering the general characteristics of working capital, it is time to move on to the analysis of working capital turnover. It is essential to understand that the efficiency and continuity of a company's operations largely depend on the availability of sufficient working capital and its optimal utilization. A lack of financial resources to procure necessary levels of inventory can lead to production process interruptions and failure to meet the company's production plans. Considering that working capital includes not only physical assets but also cash resources, the level of a company's financial stability also depends on how effectively they are utilized. All of this emphasizes the importance of not only monitoring the status and prudent use of working capital but also analyzing the indicators of its turnover [2].

In economic literature, there is no unequivocal approach to defining the concept of "Working Capital Turnover." It can be understood as a measure reflecting how many times during a period (usually a year) the

company's working capital (e.g., inventory, accounts receivable) turns over in its operational activities. Higher working capital turnover typically indicates more efficient resource utilization by the company and fewer blocked funds in working capital.

Financial IT products for managing working capital turnover

There are several IT products that aid in optimizing working capital turnover:

1. **Inventory Management and Demand Forecasting Systems:** These systems, based on algorithms and artificial intelligence, allow companies to optimize inventory levels, avoiding excessive or insufficient stock. This helps improve inventory turnover and reduces storage costs. Automation of working capital management, including inventory management, can be achieved using various financial IT products. Some of these systems include:
 - **ERP Systems (Enterprise Resource Planning):** Integrated software solutions that automate and manage various aspects of a company's operations, including inventory management. They integrate information from different functional areas such as accounting, production, logistics, etc., enabling effective inventory management and improved turnover.
 - **SCM Systems (Supply Chain Management):** Focused on optimizing the entire supply chain, these systems help streamline procurement, production, and distribution processes, reducing the time goods stay in inventory and increasing turnover.
 - **CRM Systems (Customer Relationship Management):** These systems help enhance customer interactions, leading to more accurate demand forecasting and inventory optimization.
 - **WMS Systems (Warehouse Management System):** Specializing in warehouse inventory management, they automate warehousing processes, movement of goods, and maintaining optimal stock levels.
 - **Analytical and Business Intelligence Systems:** These systems analyze data and create reports for more informed inventory management decisions. They provide essential information on turnover rates and the efficiency of working capital management.
2. **Optimization of Accounts Payable Management:** Managing accounts payable also plays a crucial role in working capital turnover. Financial IT products help optimize accounts payable processes, automate supplier payments, and improve payment terms. This enables companies to avoid penalties and enhance collaboration with suppliers. Optimization of accounts payable management can also be achieved through various financial IT products. Some of these include:
 - **AP Automation:** These systems automate accounts payable processes, including electronic invoice processing, automatic validation, and approval of invoices, leading to more efficient accounts payable management.
 - **E-procurement:** These platforms automate procurement processes, starting from order placement to payment. They include functions such as price comparison, supplier selection, and automatic order generation, optimizing accounts payable management.
 - **Forecasting and Analytics:** Financial IT products provide tools for data analysis and forecasting the company's future needs. Analytics helps identify trends and issues in working capital turnover, while demand forecasting assists in smart inventory and production planning, avoiding overproduction or under-supply. Forecasting and analytics for working capital turnover can also be achieved using various financial IT products, including:
 - **Financial Performance Management (FPM):** Integrated platforms offering functionality for financial analysis, planning, and forecasting. They can be configured to create models and forecast working capital turnover based on historical data and business drivers.
 - **Business Intelligence and Analytics:** Data analysis platforms that allow creating dashboards, reports, and forecasting models from various data sources. They can be tailored to analyze working capital turnover and identify trends.
 - **Time Series Analysis Tools:** Systems for analyzing time-series data, allowing modeling and forecasting temporal patterns and trends in data, useful for forecasting working capital turnover based on historical data.
 - **Integrated Manufacturing Execution Systems (MES):** If working capital turnover is related to production processes, MES systems can provide analytics and forecasting tools related to this indicator.
 - **Integrated Business Analytics Platforms:** These platforms consolidate data from different sources and provide tools for analysis, visualization, and forecasting various business indicators, including working capital turnover [3].

Existing advantages and disadvantages of using financial IT products to manage the turnover of working capital

Advantages	Disadvantages
Automation of processes. Financial IT products allow you to automate many processes of managing the turnover of working capital, which reduces the likelihood of errors and increases work efficiency.	Investment costs. The implementation and support of financial IT products may require significant investments, especially for small businesses.
Better analysis and forecasting. Financial IT products provide advanced analytical capabilities that allow companies to analyze data more accurately and make more accurate forecasts. Demand forecasting and analytics help companies adapt to changing market conditions and reduce the risk of losses.	Training and implementation. The introduction of new financial IT products may require training of employees and time to adapt to the new system.
Inventory optimization. With the help of financial IT products, companies can optimize inventory levels by avoiding excess inventory and reducing associated costs.	Dependence on technology. Companies using financial IT products are becoming dependent on the stable operation of technology and Internet connection. Potential failures may lead to temporary problems with working capital management.
Improving relationships with customers and suppliers. Optimizing the processes of managing accounts receivable and accounts payable allows you to strengthen relationships with customers and suppliers.	Data security. The introduction of financial IT products may entail the need to ensure a high level of security of the company's data in order to prevent possible information leaks.
Faster decision-making. Real-time data analysis allows companies to make more informed decisions based on up-to-date information.	Integration with existing systems. Sometimes the integration of financial IT products with already used systems can be a difficult task, which will require additional efforts and resources.
Automation of processes allows you to reduce manual work, reduce errors and increase the efficiency of decision-making.	

Table 1. Advantages and disadvantages of using financial IT products to manage the turnover of working capital

Calculation of Working Capital Turnover in Financial IT Products

Various tools and formulas are used in financial IT products to calculate the working capital turnover, which helps assess the efficiency of a company's use of short-term assets. Within the analytical approach, coefficients are used to reveal the indicators of working capital turnover and its components, reflecting the degree of their effective utilization. The following indicators are determined:

Turnover rate: This measure represents the number of turnovers made by the working capital of the company or its components during the reporting period.

Turnover period: This indicator indicates the average time required to recover the funds invested in the company's operations back into the business activities. The formulas for calculating the indicators of working capital turnover are presented below [4].

Formula for calculating the turnover of working capital based on the balance sheet:

The working capital turnover coefficient (also known as fixed assets turnover ratio, Cwct) represents the ratio of sales revenue to the average size of working capital (Fig. 2).

$$Cwct = \text{Revenue from sales} / ((\text{Working capital}(i) + \text{Working capital}(f)) * 0,5)$$

Fig. 2 Formula for calculating the turnover ratio of working capital

The economic significance of this ratio is to evaluate the effectiveness of investing funds in working capital, i.e., how working capital affects the size of sales revenue. In practice, the analysis of turnover is complemented by the working capital commitment coefficient.

The working capital commitment coefficient (Cwcc) - shows the amount of profit per unit of working capital. The formula for calculating the coefficient is inversely proportional to the working capital turnover ratio and is as follows (Fig. 3).

$$Cwcc = ((\text{Working capital}(i) + \text{Working capital}(f)) * 0,5) / \text{Revenue from sales}$$

Fig. 3 Formula for calculating the coefficient of consolidation of working capital

The turnover period of working capital indicates the duration of the turnover of working capital and is expressed in the number of days required for the recovery of working capital. The formula for calculating the turnover period of working capital is to divide the number of days in a year by the working capital turnover ratio.

The higher the value of the working capital turnover ratio, the better the management of working capital in the company. In financial practice, there is no universally accepted value for this indicator; the analysis must be conducted in dynamics and compared with similar companies in the industry. The table below presents various types of turnover analysis.

The value of the indicator	Indicator analysis
Cwct (The working capital commitment coefficient) ↗ Pwct (Reduction of the turnover period) ↘	The increasing dynamics of the growth of the working capital turnover ratio (reduction of the turnover period “Pwct”) indicates the increasing efficiency of the use of the main resources of the enterprise and the strengthening of its financial stability.
Cwct (The working capital commitment coefficient) ↘ Pwct (Reduction of the turnover period) ↗	The decreasing dynamics of changes in the turnover ratio of working capital (an increase in the turnover period) indicates a deterioration in the efficiency of using key resources of the enterprise. In the long term, such a decrease in efficiency may lead to a decrease in the financial stability of the company.
Cwct (The working capital commitment coefficient) > C* _{wct} (Industry averages)	If the turnover ratio of working capital exceeds the industry average (C* _{wct}), this indicates an increased competitiveness of the enterprise and strengthening of its financial stability. [5]

Table 2 reflecting the value of working capital turnover indicators and their analysis

The debt collection period reflects the average number of days it takes for customers to pay their invoices. Other things being equal, a shorter debt collection period is preferable for a company. To calculate it, the average accounts receivable data is divided by the amount of annual credit sales, and the result is multiplied by the number of days in a year.

These tools and formulas are included in many financial IT products that enable companies to automate calculations, analyze data, forecast, and optimize working capital turnover. Such products help businesses make informed financial decisions and enhance their competitiveness in the market.

When assessing a company's liquidity, two indicators are used: the current ratio (Fig. 4) and the quick ratio (Fig. 5).

$$\text{Current liquidity ratio} = \text{Current assets} / (\text{Short – term liabilities})$$

Fig. 4 Formula for calculating the current liquidity ratio

If the current ratio reaches its lower limit, it may highlight potential difficulties in meeting obligations on time. It is important to remember that even if the current ratio exceeds 1, it does not necessarily indicate full liquidity, especially if there are non-liquid inventories. At the same time, striving for excessively high liquidity ratios is undesirable as it may indicate suboptimal resource utilization (e.g., accumulation of excess cash). The current ratio of a company is largely determined by the nature of its activities:

- Traditional manufacturing companies typically have significant working capital requirements for investments in inventories (including raw materials, work in progress, and finished goods) and accounts receivable (as their customers often expect extended credit periods). Therefore, in such companies, the current ratio may reach 2 or more.
- Modern manufacturing companies follow the "just-in-time" principle to reduce inventory levels, leading to a slight reduction in the current ratio.
- In some sectors, a current ratio not exceeding 1 is considered acceptable. This is particularly relevant for retail trading where large companies such as Wal-Mart (in the USA) and Tesco (in the UK) dominate. Such retail enterprises usually obtain long-term credits from suppliers but do not offer credit to

customers. As a result, their accounts payable may exceed accounts receivable. These companies also manage inventories carefully through efficient supply chains.

In cases where large inventories prevail in a sector or company, a more accurate liquidity assessment can be achieved using another indicator - the quick ratio, which is calculated as follows:

$$\text{Quick Liquidity ratio} = \text{Liquid assets} / (\text{Short – term liabilities})$$

Or

$$\text{Current assets – inventories} / (\text{Short – term liabilities})$$

Fig. 5 Formula for calculating the quick liquidity ratio

Its benefit lies in excluding the least liquid asset - inventories - from current assets.

When evaluating working capital, several other indicators are also useful, traditionally grouped as turnover ratios or asset efficiency ratios. For example, the inventory turnover ratio, calculated by dividing the cost of goods sold by the average level of inventories. This ratio demonstrates how quickly inventories are sold. A higher value of this ratio indicates more active inventory turnover. However, for ease of interpretation, the efficiency indicators are often expressed in days, and such an indicator is called the inventory turnover period (Fig. 6).

$$\text{Inventory turnover period} = \text{Average stock level} / \text{Cost of sales} * 365 \text{ days}$$

Fig. 6 formula for calculating the inventory turnover period

The inventory turnover period reflects how much time is needed to sell all existing inventories. Under equal circumstances, companies often prefer a shorter inventory turnover period, but the nature of the industry also plays a significant role.

In addition to this, there is another useful financial indicator for assessing the overall efficiency of working capital utilization. To calculate it, annual sales data should be divided by the average level of working capital, providing information on the relationship between revenue and working capital.

Under equal conditions, a higher value of this indicator is preferable for a company. For the purposes of this ratio, working capital is considered as the difference between inventory and accounts receivable investments and accounts payable [1].

Measures to accelerate the turnover of working capital

An important aspect of proper configuration and rational utilization of working capital is the standardization of inventory and expense levels. Advancing towards more efficient use of working assets in an enterprise involves the sequential execution of the following steps:

1. Analyzing changes in the volume and composition of working assets in the previous period.
2. Calculating turnover and profitability ratios of working assets.
3. Evaluating the main sources of financing for working assets.
4. Developing a strategy for creating working assets.
5. Optimizing the volume of working capital to an acceptable level of liquidity.
6. Ensuring the preservation of acceptable profitability.
7. Ensuring the optimal structure of financing sources for working assets [6].

To accelerate the turnover of working capital, it is necessary to reduce the time they spend at each stage of the cycle, ultimately enabling the use of equal volumes for more intensive operations or performing the same operations with smaller amounts of working capital.

This can be achieved through the following measures:

1. Reducing the inventory of goods and materials.
2. Decreasing the volume of work in progress.
3. Accelerating the sales of finished products and completed projects.
4. Reducing accounts receivable.

Although each of these actions is individually significant, the best effect is achieved when they are applied comprehensively within an overall plan.

In the sphere of working capital turnover, acceleration can be achieved through improving logistical systems, selecting optimal schemes for material resource movement, optimizing inventory levels, and implementing wholesale trading methods. Additionally, optimizing the organization of finished product marketing, mechanizing operations in warehouses and bases, utilizing new transportation technologies, and effectively monitoring compliance with bank requirements can contribute to faster turnover of funds.

There are several methods to increase the speed of working capital turnover through financial IT products, including:

1. Strengthening production processes and reducing production time.
2. Economical use of raw materials, fuel, and energy resources.
3. Organizing production through the introduction of advanced equipment and technologies, improving the quality of tools, standardization, and optimization of organizational forms such as specialization and collaboration.
4. Improving relationships with suppliers, getting closer to consumers, improving the payment system, timely order fulfillment, and ensuring order and delivery coordination.
5. Applying a logistical approach to procurement management, organizing production, and selling finished products, which reduces the working groups' time and reduces production and trade costs [7].

Problems faced by companies in the course of managing the turnover rate of working capital turnover with the help of financial IT products

Managing working capital turnover with the help of financial IT products can present some challenges and issues that may arise due to the specificity of business processes and technology implementation. Here are some of them:

1. Implementation of financial IT products can be a complex and costly process. This includes training employees, configuring the system to meet the company's needs, and integrating it with other existing software.
2. The introduction of new IT products may encounter resistance from employees due to the need to adapt to the new system and change their work habits.
3. Integrating financial IT products with existing management systems or ERP systems can pose technical complexities, especially if the company already has a complex infrastructure.
4. Ensuring a high level of data security is a critical concern when using IT products. Financial information leaks can pose serious risks to the company.
5. After implementing financial IT products, continuous support and updates may be required, which can be a costly and time-consuming process.

Conclusion

In conclusion, the importance of financial IT products for managing working capital turnover and their impact on businesses can be summarized. Financial IT products are modern tools that significantly simplify and optimize the management processes of a company's short-term assets, such as inventory, accounts receivable, and accounts payable.

Automation and analytics in financial IT products enable companies to obtain more accurate information about the state and movement of working capital. This allows for quick responses to changes in market conditions and informed financial decision-making. Demand forecasting and inventory optimization help reduce storage costs and mitigate risks related to stockouts or obsolescence. Additionally, financial IT products improve relationships with customers and suppliers. Optimizing accounts receivable and accounts payable processes helps shorten payment periods and enhance trust from partners. Through the use of financial IT products, companies can enhance the efficiency of their working capital utilization, improve liquidity, and boost business profitability. They become more competitive in the market and better equipped to adapt to changing conditions.

However, it is essential to remember that successful working capital turnover management goes beyond the mere application of financial IT products. It is a comprehensive process that requires a deep understanding of the business's specifics, along with data analysis and forecasting. Financial IT products serve as powerful tools in this process, and their effective utilization can be a key success factor for enterprises.

Thus, financial IT products become an integral part of modern business, enabling companies to optimize working capital turnover management and achieve more sustainable financial outcomes. Their implementation and active utilization contribute to increased efficiency, competitiveness, and overall success in the dynamic and ever-changing world of modern entrepreneurship.

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