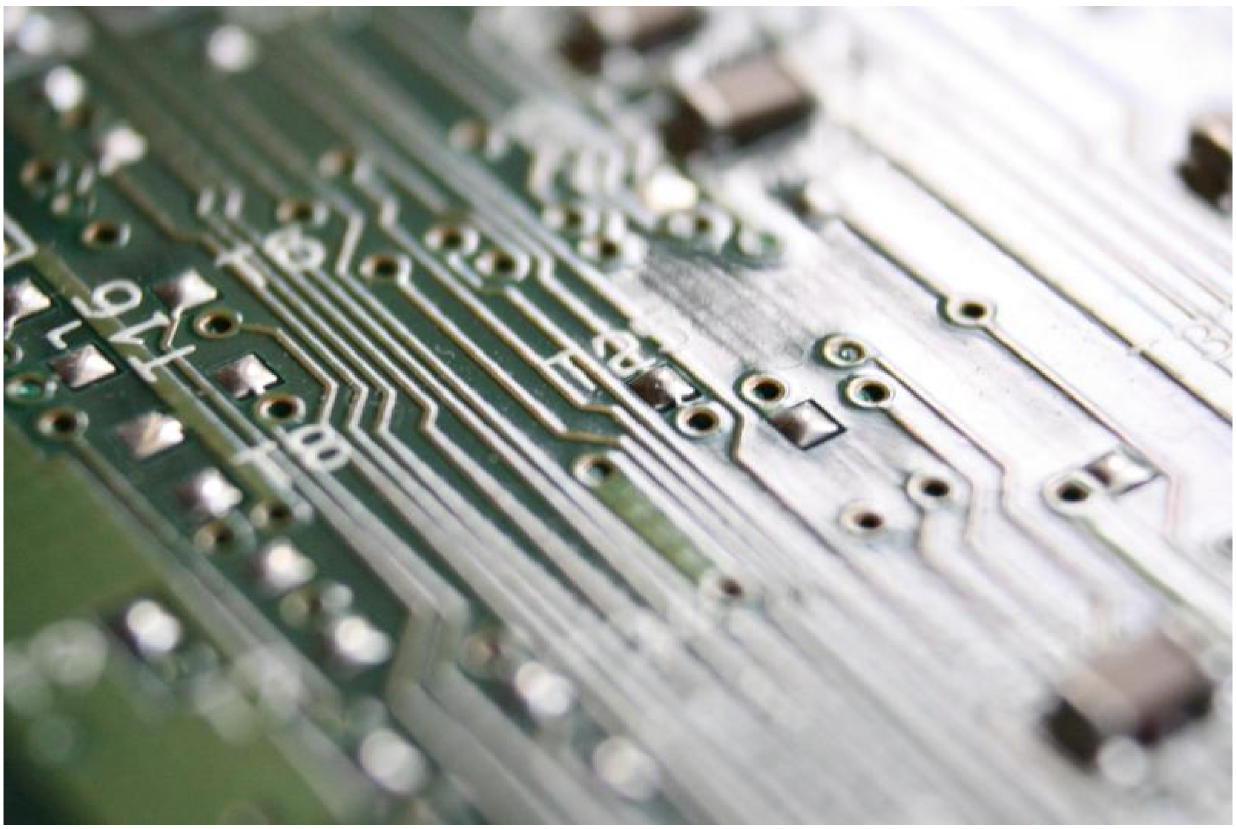
Automate or informate? Firms must invest in specific types of IT to improve working capital management

August 22 2023, by Shannon Roddel



Credit: Public Domain

The management of working capital—or a firm's current assets minus its current liabilities—aids organizations in making efficient use of their existing assets and maximizing cash flow.

The relationship between efficient working capital management and firm performance can be complex due to globally dispersed supply chains, number of suppliers and product variety, and technological uncertainty, among other factors.

New research from the University of Notre Dame shows that information technology represents a critical investment that firms must make in order to make informed, objective and firm-specific working capital decisions that would result in improved performance.

"Impact of working capital on firm performance: Does IT matter?" is forthcoming in the *Journal of Operations Management* from Sarv Devaraj, the Fred V. Duda Professor of Management in Notre Dame's Mendoza College of Business.

Based on a sample of 1,054 U.S.-based manufacturing firms during 2011-13, the study analyzes IT infrastructure investment, which includes spending on servers and hardware, and IT labor investment—hiring and training IT employees.

The study explains how IT infrastructure and IT labor perform distinct roles that can help automate (use technology to increase the speed and accuracy of process execution) and/or informate (use technology to create new information), thereby moderating the working capital-firm performance relationship.

"Our results show that IT infrastructure investments have a stronger impact on the positive relationship between working capital management and firm performance than IT labor investments," said Devaraj, who specializes in business analytics, supply chain management and the business value of technology. "This is mostly due to the structured and transactional nature of the data underlying working capital processes."

The three metrics that drive a firm's working capital performance are days inventory outstanding (DIO), which represents the firm's inventory on hand at the current sales rate; days payables outstanding (DPO), or the period of time that a company takes to pay off its suppliers; and days sales outstanding (DSO), which represents the period of time between the sale of goods and the collection of revenue by the company.

Firms can improve performance by aggressively managing their working capital by reducing DIO and DSO and increasing DPO. However, delaying payables excessively, cutting down on inventory or unduly shortening the receivables cycle can make the supply chain vulnerable and impact firm performance negatively.

The study reveals that IT infrastructure expenditures improved the positive effects of DPO while reducing the negative effects of DIO and DSO on business performance. It also found that IT labor investments can boost the beneficial effects of DPO while lessening the negative effects of DIO. However, the DSO-firm performance link was not reduced by IT labor investments.

While the performance effects of working capital processes related to inventory, payables and receivables are amplified by IT infrastructure due to the mostly structured nature of the underlying processes, IT labor can also have a unique role to play in the working capital-performance relationship.

IT business analysts can interpret working capital data, analyze key cash flow metrics, gauge the implications of changes in the supply chain environment for working capital management and share these insights with senior management and other employees. They can also develop new processes based on the needs of relevant stakeholders.

"As businesses struggle to figure out how best to manage their working capital, it's important for managers to get buy-in from their superiors for any new IT investment," Devaraj said. "Our findings should enable managers looking after working capital-related processes to justify making greater investments in IT and, particularly, in IT infrastructure."

More information: Palash Deb et al, Impact of working capital on firm performance: Does IT matter?, *Journal of Operations Management* (2023). DOI: 10.1002/joom.1244

Provided by University of Notre Dame