

# ADOPTION STRATEGIES FOR ROBOTIC PROCESS AUTOMATION IN THE TRANSPORTATION SECTOR

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## ABSTRACT

*In terms of economic value, labor benefits, quality and control enhancements, and flexible execution, robotic process automation has a substantial influence on a company's operations and competitive posture. Everyone in the organization must roll up their sleeves and participate in adoption, including decision-makers and staff from various areas. RPA enables various business units within an organization to create solutions to quickly digitize operations, producing substantial and sustainable value in little time while lowering overall risks. Employees desire the tools to find out how to simplify their work. They can do this by automating labor-intensive, repetitive procedures. A successful strategy is for people to learn how to deploy such automation themselves, so the benefit instantly transfers into making their daily job simpler. Robotic Process Automation (RPA) has the potential to revolutionize the transportation sector, particularly in terms of increasing efficiency, reducing costs, and improving customer satisfaction. Here are a few examples of how RPA can be applied in the transportation industry. This research paper explores the adoption strategies for Robotic Process Automation (RPA) in the transportation sector. The transportation sector is constantly looking for ways to increase efficiency, reduce costs, and improve customer satisfaction. RPA has the potential to achieve all three goals by automating various repetitive tasks and reducing errors.*

*The research paper provides an overview of RPA technology and its benefits, as well as the challenges that need to be overcome to successfully implement RPA in the transportation sector. The paper identifies several key adoption strategies, such as identifying the right processes to automate, developing a clear business case, engaging stakeholders, and selecting the right RPA vendor.*

**Keywords:** Robotic Process Automation, Technology, Transport sector, Customer satisfaction.

## INTRODUCTION

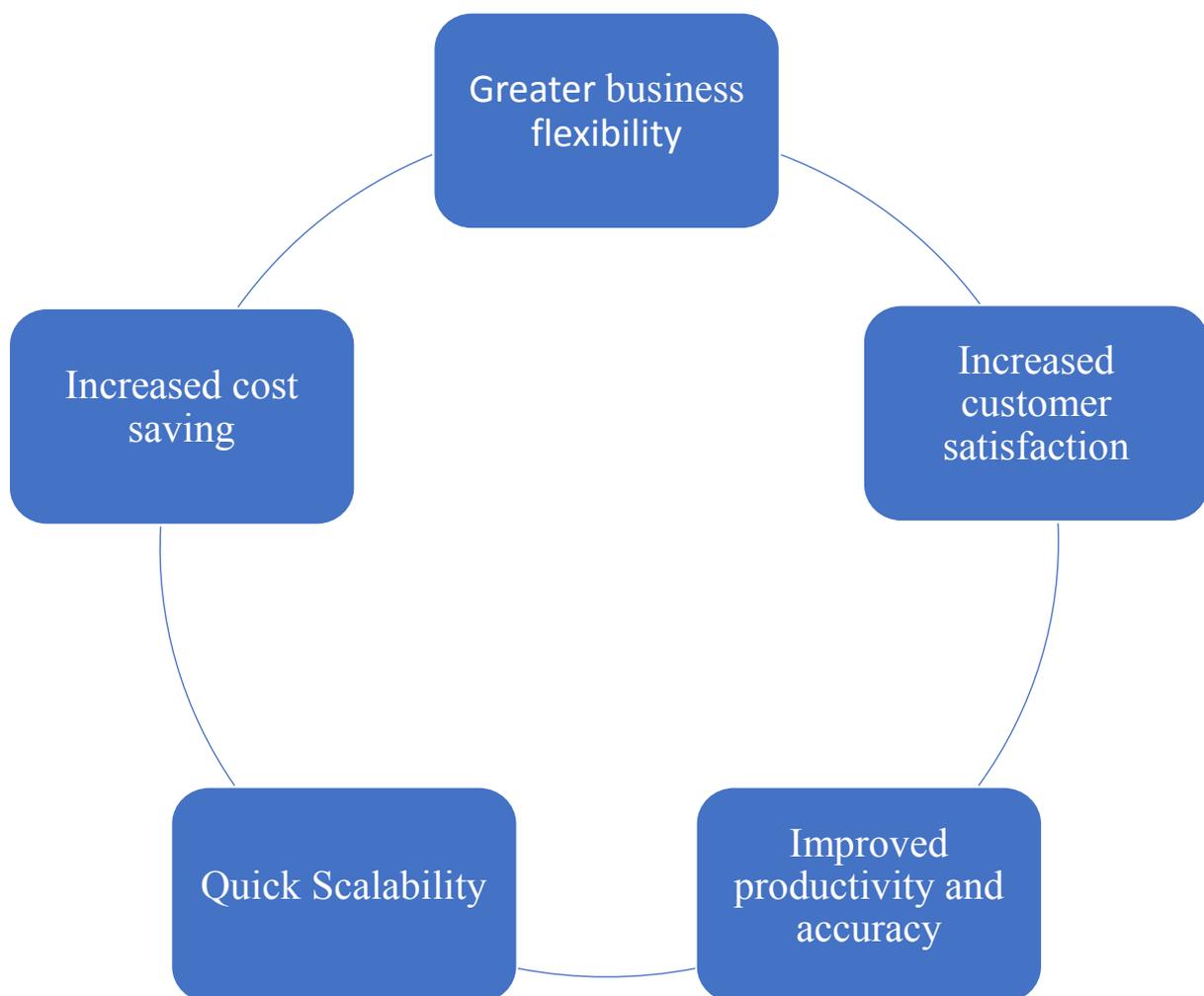
RPA is a technique for automation that makes use of software robots to carry out routine, basic, and repetitive commercial tasks like data input. Users create bots and train them to emulate the precise actions a human employee would take to complete a job while using RPA technology. For instance, RPA is often used by telecom companies to expedite the processing of invoicing. The bot would then follow a script that looked like this: Take the data from an incoming bill and copy it. Enter it in the company's accounting software. To get the necessary approvals, send the invoice to the appropriate authorities. Further common uses of RPA in the telecom sector include the processing of new orders, updating customer data in a CRM, and creating automated subscriber invoices Andaleeb et al. (2017).

Yet the potential of RPA goes much beyond what these applications can do. RPA enables CSPs to significantly improve their technological ecosystems when paired with artificial intelligence (AI) processing, low code writing tools, concurrent bot execution, and full automation solutions. Robotic process automation and associated technologies, such as

intelligent automation, may enhance processes and save costs, but only a small number of organizations have advanced beyond tactical deployments of task automation that are of limited utility. RPA, to put it simply, is an intelligent automation solution that enables organizations to build a virtual workforce of software robots that can carry out repetitive activities much as a person would, relieving human workers of boring, repetitive labor. Consider the tedious everyday task of manually copying data from one software program to another, which is replete with potential mistakes Geetha & Cecilia (2017).

RPA gives companies the ability to build distinctive virtual workforces that promote speed, agility, and efficiency and can handle those repetitive jobs. While RPA can do more than just one job, it stands out for its capacity to significantly increase return on investment while also having a favorable influence on business-wide results Hofmann, et al. (2020).

### Advantages of Adaptation Robotic Process Automation



**FIGURE 1**  
**ADVANTAGE OF ADAPTATION ROBOTIC PROCESS AUTOMATION**

#### Greater Flexibility for Business

Easily and rapidly expand your virtual workforce. As business demands change, RPA enables quick deployment and rapid change reaction.

**Increased satisfaction among employees-** Workers may utilize their expertise to do more difficult and important work for the company instead of spending a lot of time on routine, boring, and repetitive chores Syed et al. (2020).

**Higher cost savings-** RPA lowers expenses by lowering the amount of time people waste on pointless, repetitive jobs and the requirement for FTE labor. Also, the bots reduce time- and money-consuming errors and rework by increasing accuracy.

**Quickly scaling-** Scaling up RPA activities is fast and simple. Without any downtime, users may add, modify, or extend automated processes as required Van der et al. (2018).

**Higher precision-** By delegating error-prone procedures like procure-to-pay, quote-to-cash, and claims processing to robots, you can do away with human supervision. Employee accuracy is improved, and human error risk is reduced by decreasing the frequency with which data is manually entered. Happier consumers result from fewer errors.

**Enhanced customer satisfaction-** Automating the repetitive procedures that take up customer service professionals' time allows them to do more in less time, reducing their average handling time and enabling them to provide more individualized assistance. Customers are pleased when they get better service Willcocks, et al (2015).

**Increased output-** Use a single robot to do a limitless number of tasks, even during busy times. Virtual robots may do the duties of three to five full-time workers and operate non-stop, 24 hours a day.

**Reduction in Operating Expenses-** Offload boring, repetitive jobs to virtual robots that operate around the clock to save labor costs and training expenses while also saving important time.

**Increased efficiency and speed-** Virtual robots operate at digital speeds and without interruptions throughout the year. While setting up the RPA bots, which function swiftly, a job that would have previously required several employees and hours utilizing fragmented methods now only needs one person.

### **RPA in the Transportation Sector: Real-World usage Scenarios**

Monitoring and planning for shipments- Initial pick-up requests and verifying and reporting status across internal systems and portals are examples of rule-based, high-volume, low-exception processes that need coordination. In other words, it seems as if the subprocesses "were created for software robots." By extracting shipping information from incoming emails or by tracking tasks in scheduling systems, bots' data management capabilities may be put to good use Ivančić et al. (2019).

**Invoice processing and credit collections** - The best solution for this procedure is a software robot because of its ability to integrate and simplify operations. As bots may interface with the commercial delivery of products, end-to-end automation of order-to-cash procedures for many (read: hundreds) big third-party logistics (3PL) carriers are feasible. Being paid on time after completing work is therefore made easier for logistics businesses thanks to RPA.

**Order and inventory processing** - Due to the significant quantity of data input required to handle shipping and billing information, this is the worst manual task imaginable. Yet this is also why it is such a pertinent application case for robotic process automation in transportation and logistics. After that, monitoring data and invoicing the total are simple.

When abnormalities do arise, a CSR is only consulted, which is not often, keeping human involvement to a minimum Ivančić et al. (2019).

Capturing, researching, and closing out loads- Working with third-party carriers and suppliers, e.g., using couriers for less-than-load (LTL) shipments, is certainly an advancement towards expanding your business, but it comes with a cost: the need to track multiple systems. This cost is minimized using software robots, which can automatically scan the carrier's website and capture PRO numbers, or invoice amounts, and subsequently close out loads in no time.

### **Drawbacks of the Transport Sector**

The transport sector is an integral part of modern society, providing mobility for people and goods. However, the sector has several drawbacks that need to be addressed to ensure sustainability and safety. This book chapter provides a comprehensive overview of the drawbacks of the transport sector, including environmental impact, congestion, infrastructure maintenance, safety concerns, energy dependence, and cost Jovanović, et al. (2018).

**Environmental Impact-** One of the significant drawbacks of the transport sector is its environmental impact. The sector is responsible for a significant portion of greenhouse gas emissions and air pollution. The burning of fossil fuels, such as gasoline and diesel, in cars and trucks, is a primary contributor to these emissions. Greenhouse gas emissions from the transport sector are responsible for climate change, leading to sea level rise, more frequent and severe weather events, and the loss of biodiversity. Air pollution from the transport sector can cause respiratory problems, cardiovascular disease, and cancer.

**Congestion-** Another significant drawback of the transport sector is congestion. As the number of vehicles on the road increases, traffic congestion becomes a significant problem. Congestion can lead to wasted time, increased fuel consumption, and reduced productivity. It also has economic impacts, as businesses may struggle to transport goods to markets or customers. Congestion can also have significant environmental impacts, as it leads to increased greenhouse gas emissions and air pollution.

**Infrastructure Maintenance-** Maintaining transport infrastructure such as roads, bridges, and tunnels is costly. Many countries struggle to fund the necessary repairs and upgrades. The cost of maintaining infrastructure is particularly challenging in developing countries, where resources may be limited. The lack of investment in infrastructure can lead to poor road conditions, which can increase the risk of accidents and increase vehicle emissions Koopmans (1949).

**Safety Concerns-** The transport sector can be dangerous. Accidents on roads, rail tracks, and in the air can result in significant loss of life and property damage. Road accidents, in particular, are responsible for a significant number of deaths each year. Bridges and tunnels must be maintained to ensure they are safe for use, and rail tracks must be properly maintained to prevent derailments Santos et al. (2019).

**Energy Dependence-** The transport sector is heavily dependent on fossil fuels, which are finite and increasingly expensive. As a result, many countries are exploring alternative forms of transportation, such as electric vehicles and public transit. However, the transition to alternative forms of transportation is costly, and it may take many years to replace the existing fleet of vehicles with more sustainable options.

**Cost-** The cost of transportation can be a burden for many people, particularly those who live in remote areas or who must travel long distances for work or school. The cost of owning a

vehicle, including the cost of fuel, maintenance, and insurance, can be significant. Public transit can be an affordable option for some, but it may not be available in all areas.

### **Adaptation Strategies of Robotic Process Automation in Transportation**

Robotic Process Automation (RPA) is an emerging technology that has gained significant momentum in recent years. It involves using software robots to automate repetitive and time-consuming tasks, thereby increasing efficiency, and reducing costs. In the transportation sector, RPA can be used to automate various processes such as freight management, logistics, supply chain management, and customer service. Here are some adoption strategies for RPA in the transportation sector:

**Identify the Right Processes:** The first step in adopting RPA is to identify the right processes that can be automated. These processes should be repetitive and time-consuming and should not require significant human intervention. The ideal processes to automate are those that are rule-based, high-volume, and have low variability Morlok & Chang, (2004).

**Develop a Business Case:** Once the processes have been identified, the next step is to develop a business case for RPA adoption. The business case should identify the potential benefits of automation, such as reduced costs, improved efficiency, and increased accuracy.

**Select the Right RPA Tool:** There are several RPA tools available in the market, and it is essential to select the right tool based on the specific needs of the transportation sector. The tool should be easy to use, flexible, and scalable.

**Create a Centre of Excellence:** To ensure successful RPA adoption, it is essential to create a Centre of Excellence (Coe) that is responsible for the development, deployment, and management of RPA solutions. The Coe should consist of a team of experts with the necessary technical and business skills Penttinen et al. (2018).

**Train Employees:** The successful adoption of RPA requires the training of employees on the use of the new technology. This training should be provided to all stakeholders, including IT staff, business users, and end-users.

**Start Small:** It is advisable to start with a small-scale RPA implementation before scaling up. This approach allows for testing and fine-tuning the RPA solution before deploying it on a larger scale.

**Measure Performance:** To ensure the success of RPA adoption, it is essential to measure the performance of the automated processes. This can be done by tracking key performance indicators (KPIs) such as efficiency, accuracy, and cost savings Ribeiro et al. (2019).

### **CONCLUSION**

The adoption of RPA in the transportation sector can lead to significant benefits, including increased efficiency, reduced costs, and improved customer service. However, to ensure successful adoption, it is essential to identify the right processes, develop a business case, select the right tool, and create a Centre of Excellence, train employees, start small, and measure performance. robotic process automation (RPA) can bring significant benefits to the transportation sector, from improving efficiency and accuracy to reducing costs and enhancing customer satisfaction. However, successful adoption requires careful planning, execution, and ongoing maintenance.

To implement RPA effectively, transportation companies should start by identifying high-impact processes that are well-suited for automation. They should also assess their IT infrastructure, select the right RPA tool, and engage employees in the implementation process. Additionally, they should establish clear metrics for measuring success and invest in ongoing training and support to ensure the long-term success of RPA initiatives.

Overall, RPA has the potential to transform the transportation sector, but it requires a thoughtful and strategic approach to achieve maximum benefits. By adopting RPA, transportation companies can streamline their operations, reduce costs, and improve customer satisfaction, positioning themselves for long-term success in a rapidly evolving industry.

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