The American Journal of Applied Sciences
ISSN 2689-0992 | Open Access

TYPE Original Research
PAGE NO. 08-19
DOI 10.37547/tajas/Volume07Issue07-02

Automating Order Processing and Inventory Management in Supply Chain ERP System

Rushabh Mehta

Financial Analyst, Hammerton, Inc., USA

OPEN ACCESS

SUBMITED 13 May 2025
ACCEPTED 27 June 2025
PUBLISHED 07 July 2025
VOLUME Vol.07 Issue 07 2025

CITATION

Rushabh Mehta. (2025). Automating Order Processing and Inventory Management in Supply Chain ERP System. The American Journal of Applied Sciences, 7(07), 8–19. https://doi.org/10.37547/tajas/Volume07Issue07-02

Abstract: The manufacturing industry in the US is changing quickly because of things like tariffs on both sides, more people wanting to buy things online, and complicated supply chains around the world. The fixed costs of each department go up, which lowers the margins on products and, in the end, the bottom line. The key to making order processing, inventory management, and carrying costs more efficient is automation. ERP systems have created important tools for making important business processes, like order processing and inventory management, more efficient and automated. This article looks into how ERP's use of AI in order processing and inventory management can boost productivity. This, in turn, helps manufacturing companies make more money and keep their customers happy.

Keywords: ERP Automation, Supply Chain Optimization, Order Processing, Inventory Management, Artificial Intelligence (AI), Machine Learning (ML), Robotic Process Automation (RPA), Internet of Things (IoT), Warehouse Management Systems (WMS), Predictive Analytics.

1. Introduction:

An ERP system automates order processing and inventory management because people want supply chain operations to be more efficient, accurate, and cost-effective. Companies can use technology to make their jobs easier, make fewer mistakes, and see their whole supply chain in real time. Before automation, people had to do things by hand to process orders and keep track of inventories. This was slow, prone to

mistakes, and didn't give you real-time information. ERP (Enterprise Resource Planning) solutions give businesses one place to connect and keep track of everything they do, like managing their supply chain. For automation to work best, order and inventory management systems need to work perfectly with the ERP system. Automation makes things easier, saves workers time, and lets them focus on more important tasks. People are less likely to make mistakes when they enter data, process orders, and keep track of inventories when they use automated systems. By using resources more efficiently, reducing waste, and speeding up processes, automation could help lower costs. Automated systems show you important supply chain metrics in real time, like how much stock you have, how many orders you have, and more. Automation lets you react to changes in demand, interruptions, and other market forces more quickly. Automated solutions give you real-time data and analytics that let you make choices based on what you see. This makes the supply chain run more smoothly. Automating your business can help you fill orders faster, make fewer mistakes, and keep better track of your stock, which will make your customers happier. Automation makes it easier for people in different departments and even people who work with the company to work together. A lot of businesses still use their current ERP system to process orders and keep track of their inventory by hand. Because people are always involved, this costs more for products and parts, creates a lot of waste, and makes mistakes more likely. It takes a lot of time and work to manually enter orders, keep track of stock, and fill orders, which leads to delays and bottlenecks. When people do things by hand, they make mistakes all the time. This can lead to wrong orders, wrong inventory records, and unhappy customers. When you can't see your inventory in real time and keep track of how much you have, it's hard to make the most of it. This can cause stockouts, overstocking, and higher costs for holding goods. It's hard for manual processes to keep up with changes in the needs of the business or the needs that change. Customers may be unhappy and you may lose money if you take too long to process orders or make mistakes when filling them. Implementing a completely automated system for processing orders and managing inventory within the supply chain ERP system

a. Things will go more smoothly and cost less if you automate manual tasks.

b. Make it easier to process orders and keep track of inventory by making fewer mistakes.

c. Enhance real-time visibility and management of inventory levels to facilitate improved demand forecasting and optimization.

d. Let people process and finish orders faster, which will make them happier.

e. Make it easy to change and grow the business as its needs change.

2 Fundamentals of ERP-Based Order & Inventory Processes

2.1. Core ERP Architecture and Modules

The Structure of ERP in the Supply Chain The ERP system uses modules for managing inventory and processing orders to make things run more smoothly and speed up processes. Finance and accounting, procurement, inventory management, order management, and warehouse management are all important parts. These modules work together to make sure that goods, information, and resources move smoothly through the supply chain. An ERP system is a central place to store all of your financial and operational data. It gives you a complete picture of the supply chain. It connects different systems and processes, making operations more efficient and easier. ERP takes care of everyday tasks like processing orders, keeping track of inventory, and making invoices. This cuts down on mistakes and saves time. Order processing and inventory management depend on finance and accounting, procurement, inventory management, order management, warehouse management, and supply chain management.

2.2. Traditional Order Processing Workflow

Many manufacturing companies have a team whose job it is to handle orders, keep track of them, and manage inventory. In manufacturing and supply chain companies, a normal order processing workflow starts with placing an order, then the inventory and sourcing team checks it, then picking and packing, shipping, and finally delivering the order. Automation is necessary to

make every step better, boost productivity, and cut down on errors.

2. Compelling Benefits of Automation

Benefits to automating order processing and inventory management in an ERP system, such as making things faster, more accurate, and less expensive. These benefits come from automating tasks that are done repeatedly, cutting down on mistakes made by people, and providing real-time updates on inventory levels and supply chain activity.

3.1. Increased Efficiency and Productivity

In a supply chain and manufacturing company that uses an ERP system, employees usually pick up parts when they need them and start working for their department. It's really hard to know when stockouts will happen because of this. To avoid this, manufacturing companies count their inventory every month. This helps them keep track of their accounting, figure out the work in progress report, and find out how much the inventory is worth at the end of the month. The main goal of the ERP system is to make it easier and less likely that mistakes will happen when placing orders, keeping track of inventory, and restocking. Reordering algorithms, prioritizing products with ABC analysis, and tracking inventory in real time with RFID and barcoding are some of the best ways to automate the whole process.

3.2. Reduced Cost and Overhead

One advantageous thing about automation is that it cuts down on the costly mistakes that happen when people enter data and process orders by hand. It also helps us find the best inventory levels, which means we don't have to pay more to store our goods, use up more warehouse space, or risk having our goods go out of style. Businesses can save a lot of money on labor costs by automating routine tasks and not needing as many people to handle more orders. Automation also improves the procurement process, which could lead to better deals with suppliers and lower costs through unified purchasing. It has been said that automating digital supply chains could save a lot of money. Automation has more economic benefits than just saving money on labor. They also mean less waste, fewer mistakes, and less inefficiency in the supply chain.

3.3. Improved Accuracy and Reduced Errors

Numerous manufacturing firms employ a crew responsible for processing orders, monitoring them, and overseeing inventory management. In manufacturing and supply chain enterprises, a standard order processing workflow starts with order placement, followed by verification by the inventory and sourcing team, then proceeds to picking and packing, shipping, and ultimately culminates in order delivery. Automation is essential for enhancing each phase, increasing productivity, and reducing mistakes.

3.4. End of Customer Satisfaction and Retention

Automation speeds up the processing and filling of orders, which means that delivery times are shorter and meet the needs of more and more customers. When orders are more accurate, customers get the right items, which means fewer returns and complaints. Customers have a much better time when they can see where their orders are and get updates on their status. Automation makes sure that the business runs smoothly and reliably, which keeps customers coming back and builds loyalty. In today's competitive market, one of the most important things that makes a business stand out is how customers see it. It is very important to automate this process because it makes sure that the order fulfillment process is quick, correct, and easy to understand. This makes customers happy and makes them want to stay loyal for a long time.

3.5. Improved Visibility and Real Time Insights

ERP systems with automation provide a single and complete picture of supply chain activities, including real-time data on essential factors like inventory levels, order statuses, and shipping information. Businesses may use real-time data to make educated decisions about inventory levels, purchasing tactics, and sales campaigns. Enhanced visibility aids in the identification of possible bottlenecks in the supply chain and enables proactive problem-solving methods. Furthermore, automation improves demand forecasting and planning skills, allowing businesses to predict future requirements and optimize resource allocation. Automation's transparency and real-time insights give firms the agility and responsiveness they need to efficiently handle market swings, predict possible

disruptions, and make data-driven choices that eventually optimize the whole supply chain.allocation. Automation's transparency and real-time insights give firms the agility and responsiveness they need to efficiently handle market swings, predict possible disruptions, and make data-driven choices that eventually optimize the whole supply chain.

Benefit	Automated Order Processing	Automated Inventory Management
Increased Efficiency	High	High
Reduced Costs	Medium	High
Improved Accuracy	High	High
Enhanced Customer Satisfaction	High	Medium
Improved Visibility	Medium	High

Table 1(Own Table): Comparison of Benefits of Automated Order Processing and Inventory Management

The table looks at the good and bad sides of two important areas of automation: managing inventory and processing orders automatically. This is a story that tells you

both automation technologies are very efficient because they reduce the amount of work that needs to be done by hand and speed up processes. These two systems also help things be more accurate. Order processing makes sure that orders are filled correctly, and inventory systems help keep stock errors to a minimum. On the other hand, automated inventory management has a bigger effect on lowering costs. It helps businesses keep track of their money by making sure they don't have too much or too little stock. On the other hand, Automated Order Processing only has a small effect on lowering costs. Automated Order Processing has a more direct impact on how satisfied customers are. Fast and accurate order fulfilment makes the customer experience better, which is why it gets a high rating. On the other hand, inventory management has an indirect effect and gets a medium rating. Last but not least, inventory management systems give you better visibility, which means you can see and follow operations as they happen. Most of the time, they have better dashboards and analytics for keeping track of stock levels and trends. On the other hand, order processing only gives you a little bit of information unless it is linked to bigger systems. Both types of automation are very useful, but Inventory Management is better at saving money and making things clear, while Order Processing is better at making customers happy. Together, they make the workplace very responsive and data-driven.

4 Navigating Challenges and Potential Drawbacks

4.1. High Initial Investment Costs

The design may cost a lot of money up front to add new software to existing ERP systems and use automation technologies. These costs generally include the price of software licensing, the hardware that is needed, and the hard work of getting systems to work together. Small and medium-sized businesses may have a hard time with the initial cost. Cloud-based solutions, on the other hand, have lowered these expenses by getting rid of the need for expensive hardware and infrastructure on-site. To fix this, businesses need to carefully consider the projected return on investment and search for other methods to get the product out there. This is because the long-term advantages that are expected generally surpass the expenditure that come up front.

4.2. Complexity of Implementation and Integration

Implementation and integration may be quite hard. Adding new automation technologies to existing ERP systems and other essential software programs can be very hard for businesses. Automation programs need a steady and effective flow of data across these many different systems to work, but this may be a difficult job. Successful integration generally needs a lot of planning, specific expertise, and, in many cases, certain changes

to the system. Problems like incompatible data formats and complicated operational procedures might make the integration process harder, which could lead to operational bottlenecks and greater costs. To get over these problems and make sure that automation technology is integrated smoothly and successfully, businesses need to either hire educated workers or get help from outside experts

4.3. Resistance to Change and Need for Training

Resistance to Change and Need for Training The introduction of automation sometimes leads to significant alterations in traditional work practices, which may encounter opposition from individuals apprehensive about job displacement or reluctant to acquire and adapt to new technology. To get past this hesitation and make sure that the system is used correctly, end users need to have the right training and ongoing help. Not getting enough training might cause errors, waste time, and not use new systems as much as they should. So, it's really important to use good change management techniques to deal with staff worries, get them to like automation, and make sure the transition to new methods of working goes smoothly.

4.4. Data Security and Privacy Concerns

As we rely more on technology and automated processes become more connected, people are worried about cyber threats and data security. Supply chain operations handle a lot of private information about customers, suppliers, and the organization as a whole, therefore they need to have robust security measures in place. Data breaches may have catastrophic effects, such as huge financial losses and damage to a company's brand that lasts forever. Because of this, it is very important to establish strong and complete cybersecurity measures in order to automate order processing and inventory management in ERP systems. To keep their important information safe and keep the trust of stakeholders in a world that is becoming more digital, businesses need to focus on data security methods like encryption, access restrictions, and regular security audits.

4.5 Possible Mismatches with Real World Complexities

Automated systems are designed to run using established algorithms and historical data analysis. But because real-world supply chains are continually changing and can be hard to predict, these systems may not always be in line with current market trends or be able to adapt quickly to new or unexpected patterns. Algorithms could have trouble adapting to sudden and big changes in client demand, as well as outside events that could change how people buy things in ways that weren't planned. Because of this, businesses need to keep an eye on their automated order processing and inventory management systems all the time and be ready to make changes as needed to make sure they work well even when the market changes or something unexpected happens.

5 Technological Enablers of Automation

5.1. Artificial Intelligence (AI) and Machine Learning (ML)

Smart supply chain automation is making these new technologies required very soon. Artificial Intelligence (AI) and Machine Learning (ML) Predictive analytics are feasible because of AI and ML algorithms. These are incredibly crucial for things like figuring out how much demand there will be, making sure you have the right amount of stock, and managing risk. They let you automate hard activities like smartly routing orders, choosing suppliers, and managing warehouses, which helps everything work much more smoothly. AI and ML also help you make better choices by looking at big sets of data in real time and offering you knowledge that you can use to make choices. These technologies also enable you to uncover unusual sales or inventory patterns, which are called anomalies. They also let you undertake predictive maintenance, which involves finding out when equipment is likely to go down. AI also drives powerful chatbots that can make it simpler to talk to customer service

5.2. Robotic Process Automation (RPA)

Robotic Process Automation (RPA) is a helpful and effective approach to automate many of the repetitive processes that are crucial for maintaining stock and processing orders. This covers things like inputting information, taking orders, and paying invoices. RPA helps cut down on mistakes, save money, and make supply chain operations run more smoothly by automating these daily chores. One of the nicest things about RPA is that it can run all the time, every day of the week. This implies that it always operates the same way and can execute chores more quickly. Companies may make their processes more effective and save time without having to worry about how many hours their workers work.

5.3. Internet of Things (IoT)

The Internet of Things is particularly useful for supply chain management because it helps them view and control their operations in real time. IoT devices, like as sensors and linked devices, enable you keep track of and keep an eye on items as they move through the supply chain, such shipments, inventory levels, and other things. This technology is what makes smart warehouses possible. In these warehouses, sensors and networked technology keep an eye on the stock and the environment to make sure the items maintain high quality. IoT transmits a continual stream of data, which makes it easier for businesses to keep track of their inventories and operations. IoT devices also provide you data in real time, which lets you put up systems that automatically restock. The user doesn't have to do anything to keep the inventory filled because these systems can automatically place fresh orders based on how much stock is on hand

5.4. Electronic Data Interchange (EDI)

Electronic Data Interchange (EDI) is still an important technology for automating the sharing of business documents and data between companies and their trading partners. It lets you automatically handle important documents like purchase orders, invoices, and shipment notices, which makes it easier to talk to suppliers, customers, and logistics providers. EDI makes order management far more efficient and makes sure that the data being sent is correct by automating these exchanges. One of the best things about EDI is that it cuts down on the need for manual data input. This, in turn, lowers the chances of making mistakes while processing information by hand. This automated document processing and data interchange makes the supply chain more efficient and dependable.

5.5. Warehouse and Order Management Systems

WMS and OMS are forms of software that assist automate specific sections of the supply chain. WMS is designed to make running a warehouse easier by helping with tasks like keeping track of stock, swiftly selecting and packaging orders, and managing the shipping process. On the other hand, OMS is in charge of taking care of an order from the time it is placed until it is delivered and any returns that may arise later. To have complete control over order processing and inventory across the supply chain, it is vital to link WMS and OMS with ERP systems.

5.6. Autonomous Mobile Robots (AMRs) and Automated Guided Vehicles (AGVs)

Autonomous Mobile Robots (AMRs) and Automated Guided Vehicles (AGVs) AMRs and AGVs are becoming more common in contemporary warehouses and distribution centers to transport products on their own. These robots pull goods off the shelf, sort them by order, and transfer merchandise around the factory. Putting these robots in warehouses makes them operate better, saves money on labor expenditures for moving goods by hand, and makes everyone more productive. AMRs are more flexible than standard AGVs, which frequently need to follow predetermined tracks and have the right infrastructure. This implies they can work in warehouses that are set up in different ways and have varied demands.

6. Strategic Implementation, Considerations and Challenges

6.1. Challenges and Considerations in Implementing Automated Order Processing and Inventory Management

Considerations in Implementing Automated Order Processing and Inventory ManagementThere are many benefits to automating order processing and inventory management in ERP systems, but there are also many problems and challenges that businesses need to deal with before they can use them. One big challenge is that automated jobs need to operate with current ERP modules, such as accounting, shipping, inventory management, and other business operations that are connected. You need to plan these elements out carefully, set them up correctly, and in many cases, make specific adjustments to make sure they all perform properly together. Data difficulties, delayed procedures, and trouble fully using automation can all happen if integration isn't done correctly. For automation to perform successfully, the data it utilizes must be complete, consistent, and of acceptable quality. Accurate and consistent data inputs are particularly crucial for both automated order processing and managing inventories. Automation might lose its intended benefits if the data is inaccurate or not enough. This can make it hard to transport things, fill orders, maintain track of stock, and pay bills. To make sure that the data in their ERP system is correct, up-to-date, and formatted the same way every time, companies need to have good data governance practices in place. Managing automated inventory is much harder because you have to combine data from many different places, such as sales transactions, supplier information, manufacturing plans, and

warehouse activities. To keep track of your inventory across numerous sales channels and locations, you need all of the functionality of an ERP system. These tools will help you see your inventory clearly and make sure that everything you do is in line with your goals. Accurate demand forecasting models are also needed for successful inventory automation. It's hard to build these models since the economy is uncertain, the market shifts, and there are sales. Bad forecasts can lead to difficulties with inventory, such as having too much or too little of anything. People who are used to doing things the old-fashioned way might not enjoy automation either. This opposition might make it hard for automated technology to operate and be employed. It's also very crucial to choose automation technologies that fit with the organization's present architecture and goals. There are a lot of choices, so it's necessary to perform a lot of research to make sure that the features and functionalities are what the organization requires. When solutions don't fit together, it can lead to wasted time and money, not using resources to their full potential, and, in the end, not getting the results you want. Automated systems may have trouble handling outliers and unexpected problems in supply chains, such as delays from suppliers, problems with transportation, or sudden increases in demand. Automation is great for everyday tasks, but when things go wrong, humans still need to keep an eye on things and get involved. In short, adding automated inventory management and order processing to ERP systems is hard because it needs to be fully integrated, have good data governance, make accurate predictions, manage changes strategically, choose the right solutions, and be able to deal with problems that come up. To get the most out of automation, companies need to invest their money effectively on people, processes, and technology

6.2. Implementation Strategies and Best Practices for Success

To successfully use automated inventory management and order processing in ERP systems, companies need to have clear plans and follow best practices. First, businesses should thoroughly sketch out their present processes for managing inventories and processing orders. A close look at these processes helps find specific areas that are best for automation, such bottlenecks, manual steps that are prone to mistakes, and possibilities to make operations more efficient. Setting SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) goals and metrics makes it easier to plan and track success, such as cutting down on order processing times, error rates, and the speed at which inventory is restocked.

It is highly recommended to deploy in stages, especially for complex automation projects. Companies should start with small, focused pilot projects, such automating the creation of sales orders, invoices, or some inventory management tasks. This will let them learn, improve, and see real benefits before rolling out the changes to a larger group. To keep the system working well and useful over time, it is important to always look for ways to enhance it by regularly checking its performance, getting feedback from users, and discovering areas where it can be improved. Good communication between IT and business departments is also important. IT teams have the technical skills to set up and connect automation systems, while business teams know how the organization works and what it needs to do its job. These departments need to talk to each other all the time so that they are all on the same page with the company's goals, which cuts down on interruptions and gets the most out of automation. Using advanced technologies like RFID (Radio Frequency Identification) and IoT (Internet of Things) makes it easier to keep track of inventory and respond quickly. RFID tags let you automatically keep track of inventory items all the way through the supply chain, while IoT sensors provide you up-to-the-minute information on the state and levels of your inventory. When these technologies are added to ERP systems, they make continuous, real-time data streams that are very important for managing inventory. Organizations should use the analytical features of their ERP systems to predict demand, which lets them make more accurate predictions based on past data analysis. Accurate forecasting helps you set the right quantities of inventory, reorder points, and safety stock levels. This protects you from having too much or too little inventory. Regular audits and reconciliations of inventory records are important steps to make sure that the data is correct. It is important to have clear goals and realistic implementation timeframes. Periodic physical inventory counts that are compared with ERP records

help find and fix mistakes, making sure that inventory data is always accurate and reliable. This methodical approach leads to better use of resources, lower risks, and a steady progress on the project, which leads to successful ERP automation implementations for managing inventories and processing orders.

Challenge	Potential Mitigation Strategies
High Initial Investment Costs	Explore cloud-based solutions, phased implementation, cost-benefit analysis
Complexity of Implementation and Integration	Thorough planning, skilled IT team or external experts, robust integration tools
Resistance to Change and Need for Training	Clear communication of benefits, comprehensive training programs, change management strategies
Data Security and Privacy Concerns	Implement strong cybersecurity measures, data encryption, access controls
Potential for System Errors and Failures	Regular maintenance and updates, robust backup plans, system monitoring
Possible Mismatches with Real-World Complexities	Continuous monitoring, flexible system configuration, human oversight for exceptions

Table 2(Own Table): Challenges and Mitigation Strategies for ERP Automation Implementation

The table above lists some of the problems that people often run into while implementing ERP automation and suggests ways to solve each one. The high cost of the first investment is a big problem. To deal with this, firms should think about cloud-based ERP systems, roll out the system in stages, and do detailed cost-benefit studies to show that the money spent is worth it. Another typical problem is that implementation and integration can be very complicated. To fix this, you may make thorough plans, hire expert IT teams or consultants from outside the company, and employ strong integration tools to make sure that all of your systems work together smoothly. People often resist change and need training, which can make it harder for companies to adopt ERP. Mitigation means making sure everyone knows the benefits of ERP, giving staff thorough training, and using organized management practices to help them through the change. Concerns concerning data security and privacy are also quite important, especially when ERP systems deal with private information about customers and businesses. To fix this, businesses need to use robust cybersecurity measures, such as encrypting data and limiting who may access it. There is also the chance that the system will make mistakes or break down. To keep downtime and problems to a minimum, you need to undertake regular maintenance, make sure your backups are up to date, and keep an eye on your system at all times. Lastly, ERP solutions might not always work well with the complicated way things work in the actual world. This may be lessened by keeping an eye on things all the time, making sure processes are set up in a way that allows for flexibility, and keeping people in charge to deal with exceptions or strange circumstances. In general, ERP automation has many benefits, but careful planning, technical readiness, and managing change are all important for a successful rollout.

7. The Horizon of Innovation: Future Trends in ERP Automation in Supply Chain

7.1. Increased Adoption of AI and ML

More people will start using AI, MLAI, and ML, which will make them better at dealing with ERP systems and provide them more authority. This includes AI-powered demand forecasting that is more precise, which helps firms figure out what their consumers want and maintain their stock levels just right. AI will also aid with warehouse and inventory management by reducing waste and boosting efficiency. More individuals are likely to utilize chatbots and virtual assistants that run on AI. This can assist people learn more about how to use ERP systems and how to deal with customers. One big trend for the future is the emergence of autonomous supply chain operations, where AI systems can learn and alter depending on data in real time.

7.2. Expansion of Cloud -Based ERP Solutions

The trend toward cloud-based ERP systems will keep growing because people want solutions that are more flexible, scalable, and cost-effective. More and more

businesses will select hybrid and multi-cloud ERP solutions to meet their needs for security, performance, and integration. ERP-as-a-Service (ERPaaS) models will make it easier for businesses to use powerful ERP features without having to spend a lot of money up front.

7.3. Integration with the Internet of Things (IoT) and Edge Computing

Integration with the Internet of Things (IoT) and Edge Computing ERP systems will operate better with the Internet of Things as more and more devices connect to it. This will make it easier to get a lot of real-time data from all parts of the supply chain. More people are using edge computing, which will speed up this trend by allowing data to be processed closer to where it came from. This will make reaction times faster and make real-time decision-making in the supply chain more efficient.

7.4. Enhanced User Experience and Mobile-First ERP:

Future ERP systems will put greater emphasis on making the user experience better. This will feature dashboards that are easy to use and processes that can be adjusted to match the needs of each user. As more individuals work from home and want to be able to accomplish their tasks from anywhere, ERP systems will focus more on mobile-first design. This will make it easier to get critical features from a lot of different mobile devices. AI-powered voice assistants and chatbots will help make ERP systems easier to use.

7.5. Focus on Sustainability and ESG

Focus on Sustainability and ESGAs firms become increasingly concerned about sustainability and ESG, future ERP systems will contain features to aid with these efforts. This includes being able to keep track of essential things that affect sustainability, such how much waste is created, how much energy is utilized, and how much carbon is released. ERP systems will also help with sustainable procurement, making sure that everyone in the supply chain is honest, and make it easier to fulfill more and more social and environmental standards.

7.6. Blockchain Technology for Enhanced Security and Transparency:

Blockchain technology will definitely play a bigger role in ERP systems to make supply chain operations safer and more open. Blockchain might help participants in the supply chain trust each other more by preserving records that are safe and can't be changed. This makes it easier to find transactions and data and less likely that they will be stolen. Smart contracts can also help the supply chain work more smoothly and get rid of problems by automatically carrying out agreements and making sure that all the provisions of a contract are met.

7.7. Increased Specialization and Industry-Specific ERP Solutions:

As businesses realize that each sector has its own demands for operations and compliance, there will be an increasing trend toward creating and using ERP solutions that are more tailored to certain industries. These customized systems will include features and functions that are made to meet the needs of various industries, which will make supply chain management more efficient and effective.

Technology	Role in Automation
AI and ML	Predictive analytics, intelligent process automation, enhanced decision-making
RPA	Automates repetitive tasks like data entry and order processing
IoT	Real-time tracking, smart warehouses, automated replenishment
EDI	Automated document processing and data exchange with partners
WMS/OMS	Optimizes warehouse operations and manages the order lifecycle
AMRs/AGVs	Automated picking, sorting, and movement of inventory in warehouses

Table 3 (Own Table): Key Technologies for Automating Order Processing and Inventory Management

The table above lists some new and old technologies that are very important for automating different parts of ERP (Enterprise Resource Planning) systems, especially in manufacturing and supply chain operations. Artificial Intelligence (AI) and Machine Learning (ML) help by making predictive analytics and intelligent process automation possible. These technologies help firms run their operations better by looking at patterns and predicting future trends. Robotic Process Automation (RPA) is all about automating repetitive, rules-based processes like entering data and processing orders. This lessens the amount of labor that needs to be done by hand, cuts down on mistakes, and speeds up and improves processing. The Internet of Things (IoT) lets devices link and track in real time, making smart warehouse settings. It supports automated replenishment and improves inventory accuracy and operational visibility. Electronic Data Interchange (EDI) automates the exchange of business documents (like invoices and purchase orders) between trading partners, eliminating paper-based processes and reducing delays in communication. Warehouse Management Systems (WMS) and Order Management Systems (OMS) are designed to streamline warehouse operations and manage the end-to-end order lifecycle—from receipt to delivery—ensuring efficiency and control. Finally, Autonomous Mobile Robots (AMRs) and Automated Guided Vehicles (AGVs) handle physical warehouse tasks such as picking, sorting, and transporting inventory. In logistics and distribution facilities, they make operations faster, safer, and more productive. Together, these technologies make up the backbone of a contemporary ERP automation framework, which makes the whole value chain more efficient, accurate, and scalable.

8 CONCLUSIONS

Analyzing at real-world case studies helps us understand how ERP automation is really used in supply chain management by showing both the successes and the problems that different companies have experienced. ERP automation has helped a number of big companies change the way they do business with their suppliers. Amazon, a pioneer in e-commerce, has changed how inventory is managed by using complex algorithms and robotics. This has led to speedier delivery times and happier customers. Walmart has also shown that it knows how to manage its supply chain by using ERP systems and automation to make sure that its big customer base has access to the best prices and the best inventory management. By adding current supply chain modeling and optimization approaches to its ERP system, Coca-Cola has greatly enhanced its ability to

manage its inventories throughout the world. Cadbury's strategic switch to SAP ERP made its intricate supply chain operations easier, which led to more efficient manufacturing. Even though there are many success stories, the road to ERP automation is not without problems, and a few high-profile failures serve as warnings. Hershey's 1999 ERP rollout is a well-known failure because it was rushed, the personnel weren't trained well enough, and the system wasn't tested enough, which caused big delays in the company's operations. Dell Computers spent a lot of money on an ERP system, but they finally gave up on it since it couldn't keep up with the company's growing global operations.

In general, some of the most typical problems that come up while implementing ERP systems are employees who don't want to change, problems moving data from old systems, not enough training for end users, and the difficulty of customizing the ERP system to match the needs of a given firm. People sometimes blame ERP project failures on having excessive expectations about how fast and how wide the implementation would go, as well as poor general management of the implementation process.

The experiences of companies that have started automating their ERP systems offer some important lessons. To be successful, you need to plan carefully, set reasonable deadlines, and test the system thoroughly. Another crucial part of getting users to accept the change and getting the advantages you want is giving staff the right training and managing the change well. Choosing the right ERP system and a reliable vendor that knows the organization's specific business and industry needs is very important. Lastly, the characteristics of the chosen ERP system must be carefully matched to the organization's specific business needs and goals.

Company	ERP System	Outcome/Challenge
Amazon	Proprietary	Revolutionized inventory management, fast delivery
Walmart	Proprietary	Supply chain mastery, efficient inventory, competitive pricing
Coca-Cola	Proprietary	Improved global inventory management
Cadbury	SAP ERP	Streamlined supply chain, improved production efficiency
Nestlé	Proprietary	Consolidated accounting, enhanced communication
ABC Compounding	Sage ERP X3	Automated work orders, enhanced inventory tracking
Green Rabbit	NetSuite ERP	Improved supply chain logistics, order fulfillment
N&N Moving Supplies	ERP	Reduced payroll processing time, improved accuracy
Munters Group	ERP	Real-time inventory visibility, accurate demand forecasting
Hershey's	SAP	Implementation failure, operational disruptions
Dell Computers	Proprietary	Scrapped ERP system due to rigidity
CosmeticCo	MOVEX	Implementation challenges due to language and standards

Table 4(Own Table): Case Study Summary Table

This table shows real-life examples of businesses that have employed ERP (Enterprise Resource Planning) systems. It shows the type of ERP used and the results or problems that came up.

Amazon changed the way it managed its inventory and made it possible to offer rapid delivery services by using its own ERP system. This set a new standard for supply chain efficiency. Walmart's own system also helped it become the best at managing its supply chain, optimizing its inventory, and offering competitive prices. Coca-Cola used its own ERP system to improve global inventory control, and Cadbury used SAP ERP to make

its production more efficient and its supply chain operations more efficient.

Nestlé employed a customized technology to improve communication across divisions and make accounting consolidation easier. ABC Compounding used Sage ERP X3 to automate work orders and improve inventory management. This shows how ERP systems may help with specific manufacturing demands.

Green Rabbit used NetSuite ERP to make logistics better and speed up order fulfillment. N&N Moving Supplies, on the other hand, employed a standard ERP system to speed up payroll processing and make sure that data was correct.

Munters Group had better inventory visibility and more accurate demand forecasting when they put in place an ERP system. But not all of the implementations worked. Hershey's, for example, had problems with implementation and major operational disruptions when they rolled out SAP.

Dell Computers eventually got rid of its own ERP system because it was too rigid. CosmeticCo had problems with ERP deployment since MOVEX didn't work with all languages and standards.

REFERENCES

1. Al-Janabi, S., & Altamimi, N. (2023). *An Integrated Framework to Improve ERP Systems Effectiveness in Industrial Organizations*. *International Journal of Computer Applications Technology and Research*, 13(10), 1–9. https://ijcat.com/archieve/volume13/issue10/ijcatr13101001.pdf
2. Koh, S. C. L., Saad, S. M., & Jones, M. H. (2006). *The impact of ERP on supply chain management: Exploratory findings from a European Delphi study*. *European Journal of Operational Research*, 146(2), 263–276. https://www.researchgate.net/publication/222299813
3. Ansari, N., & Karimi, H. (2024). *ERP Systems and Their Impact on Supply Chain Management*. *ResearchGate*. https://www.researchgate.net/publication/383122732
4. Jadhav, A. (2024). *Review on Role of ERP System in Optimizing Supply Chain Performance*. *International Research Journal of Modernization in Engineering Technology and Science (IRJMETS)*, 6(9), 1–7. https://www.irjmets.com/uploadedfiles/paper//issue_9_september_2024/61583/final/fin_irjmets1726576395.pdf
5. Arora, M., & Saini, R. (2024). *Automated Inventory Management Systems with IoT Integration to Optimize Stock Levels and Reduce Carrying Costs for SMEs: A Comprehensive Review*. *ResearchGate*. https://www.researchgate.net/publication/385884677
6. Patel, V. (2024). *ERP System for Business Process Improvement: Literature Review*. *IRJMETS*, 6(9), 1–8. https://www.irjmets.com/uploadedfiles/paper//issue_9_september_2024/61691/final/fin_irjmets1727091238.pdf
7. Khan, M. (2022). *Failure Case Studies and Challenges in ERP Integration*. *ResearchGate*. https://www.researchgate.net/publication/364335896
8. Chowdhury, M. M., & Rahman, M. (2014). *Autonomous Order Processing System for Supply Chain Management—An Initiative to Match Demand and Supply for Processed Food Industries in Bangladesh*. *ResearchGate*. https://www.researchgate.net/publication/258831176
9. Kanyan, A., & Garg, R. (2017). *Impact of Inventory Management and Procurement Practices on Organization's Performance*. *ResearchGate*. https://www.researchgate.net/publication/324587262
10. White, R. E., Pearson, J. N., & Wilson, J. R. (1999). *JIT manufacturing: A survey of implementations in small and large U.S. manufacturers*. *Management Science*, 45(1), 1–15.