AI at its simplest form, artificial intelligence is a field, which combines computer science and robust datasets, to enable problem-solving. The applications for this technology are growing every day, and we’re just starting to explore the possibilities, like in the field on Logistics which we are covering in this report.

**1. Predictive Analytics for Demand Forecasting:**

AI can be used to analyse data being historical, current trends etc to predict the demand for the logistics services. This Improved and optimises inventory management, i.e., better use of inventory(warehouses) in storage and other purposes, reduces the chance of stockouts, and optimization in transportation to and from the inventories, creating great economic and reputational benefits to the company.

E-Commerce and retailers use Predictive Analytics for Demand Forecasting for optimising their sales and inventory system.

**2. Route Optimization and Traffic Prediction:**

AI algorithms can be used to optimise delivery routes in real-time. The traffic and weather conditions are considered during this algorithm is ran. This reduces the fuel consumption of the transportation vehicles, reducing running costs in the name of fuel. It also shortens delivery times, along with the lower environmental impact.

E-Commerce websites from medium sized to E-Commerce giants like Amazon use AI for optimisation of route.

**3. Warehouse Automation with Robotics:**

AI-driven robots and drones can automate many of the warehousing processes. This may include but is not limited to picking, packing, transporting within warehouse, inventory management, etc. This increased the efficiency of the warehouse as automation can be utilised to work as per the requirements. It also reduces labour costs by replacing manual labourers in the warehouse, however it is to be noted that there is a higher initial cost requirement as well a need in regular and good servicing and managing of the devices used to prevent mishaps.

Most major industries use robots in their factories and industries. Major car companies like Toyota and Ford use this technology extensively.

**4. Supply Chain Visibility and Tracking:**

The usage of smart devices and sensors (like those used in the Internet of Things) is a vital key to ensure the quality of the products. It helps keep a close eye on products as they move from one place to another It is not limited to products and has applications all over the industry from warehouse to transport.

Mining companies in Australia use advanced tracking systems to monitor the movement of raw materials and minerals from the extraction site to processing plants and export terminals. AI can help optimize logistics and ensure efficient transportation.

**5. Natural Language Processing (NLP) for Customer Support:**

AI-driven chatbots and NLP tools are being implemented in most major industries. It can enhance customer support as it can answer queries and resolve many common issues faced by the customer almost instantly. This helps reduce wastage of time and money for easy fixes that may not be as obvious to the customer. However, it is not a complete replacement of human customer support as there are often cases where the AI cannot be of much help where there should be human support.

Most websites nowadays support usage of their custom Chat Bots by customers that can help solve many issues quick and easy.

Three AI based applications our organization could use would be:

1. **Subscription based Delivery priority system:**

A system to provide to faster delivery could be arranged with the help of AI by optimising routes rather than letting the logistics be auto piloted. Optimising the routes would help in the successful delivery of the products faster than regular delivery. This service could be subscription based further increasing the revenue of the organisation.

**Advantages**:

More revenue.

Customer satisfaction.

Edge against other competitors.

**Disadvantages**:

Prone to delivery issues.

May lead to customer dissatisfaction on delay.

Legal trouble may be caused if not handled carefully.

Ethically, it may lead to overworking or stress to the workers in the logistics department to ensure correct delivery.

1. **AI Based Chatbots and Phone Call bots:**

Chatbot applications can be implemented into the online website/store. This helps in fixing customer issues to an extent without much expenditure. This also helps in higher revenue as employee expenditure can be reduced. One additional fasct is that minor issues that are based on the previously recommended delivery priority system can be easily resolved using the very same chatbot application. This can also be implemented in phone calls further expanding its range of application.

**Advantages**:

Less employee cost.

Customer satisfaction.

Helps mitigate issues blowing out of proportion.

**Disadvantages**:

Should be manually monitored if it does not solve the issue.

May lead to customer dissatisfaction and legal battles on bad outputs from the bot and negligence from the manual customer support team.

Ethically, there is a takeover of human jobs by AI.

1. **Warehouse Automation:**

Complete rehaul and automation of warehouse can significantly increase the efficiency of the warehouse. This will create a robotic workhouse that can be laboured 24x7 unlike human labour without the need for additional benefits or incentives. The higher upfront cost will pay itself within a months or years depending on the performance of the company.

**Advantages**:

Increased long term profitability.

Higher efficiency.

Lesser need for micromanaging.

**Disadvantages**:

Needs skilled personnel to handle the machines.

Regular maintenance is required.

From an ethical standpoint, a huge proportion of workforce will be replaced by AI increasing the unemployment of the lesser privileged.

**Recommendations**

Hiring Data scientists and Analysts to predict the demand for products and services will be beneficial hugely for the organisation. It can also help take steps to come ahead of the competition due to this predictive insight. This also prevents any stockouts or issues in the inventory side leading to greater customer satisfaction and better reputation.

Implementation of the chatbot and phone call bot system. The implementation should be monitored for improvement and constant machine learning should be used for it till it can work on its own beyond with customer service team may interfere upon issues beyond its jurisdiction. This will prevent any ugly legal issues due to customer dissatisfaction.

Warehouse automation may be implemented if it fits the current financial situation of the organization. This application should most likely be profitable in the long run. Careful monitoring and service must be strictly followed as the risk in automation without monitoring is high.