



# A Study on Employee Perception of Ai Implementation In Cargo Handling With Special Reference To VOC Port

Ms. NIRMALA. C, Mr. SACHIN RAM. K

DEPARTMENT OF MANAGEMENT STUDIES  
KARPAGAM COLLEGE OF ENGINEERING  
COIMBATORE - 641032

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## ABSTRACT

*The most important factor that can motivate people to work for an organisation is employee perception, which can be used to determine satisfaction of the employees. This report is the result of the study undertaken based on primary objective to identify the perception of employees in AI implementation towards cargo handling in the VOC port. The study is carried out with the help of primary sources of data i.e., questionnaire method, from the responses given by the employees. The study offers a thorough investigation of how cargo handling is perceived by employees as well as the key factor affecting that perception. The study's foundation was primary and secondary data collected from the VOC Port's employees. The basic percentage approach, the Chi Square test, the correlation coefficient, and the ANOVA were the statistical techniques used in this survey. Pie charts, bar charts, and tables were used to illustrate the collected data. The study's findings provide a thorough analysis of how employees view on AI implementation in cargo handling and the main factors that affect their perceptions. Knowing how much familiarity employees have with digital technologies. The study offers recommendations for establishing better cargo handling practices based on employee perspective. The study's findings give the port authority information on how employees view AI implementation in cargo handling and what needs to be changed in that department to improve employee perception.*

## KEYWORDS

Employee Perception, Cargo handling, Artificial Intelligence.

## I. INTRODUCTION

The most important factor that can motivate people to work for an organisation is employee perception, which can be used to determine how satisfied an employee is with the company. It should be mentioned that a satisfied employee gave the company his all as oppose to the case with the

dissatisfied person. Personal traits that affect the perception include a person's attitude, personality, motives, interests, past experience, and expectations. When a person looks at a target and attempts to interpret what he or she sees, that interpretation is greatly influenced by the individual perceiver. According to Stephen P. Robbins, perception is a process that involves perceiving, choosing, organising, interpreting, and giving the environment meaning. It involves how people organise and interpret the sensor impressions they receive from their environment.

## EMPLOYEE PERCEPTION - IMPORTANCE

It is crucial to comprehend how employees perceive their work. A corporation must work to enhance both its culture and performance. Employee participation in decision-making will boost commitment, lessen absenteeism, and decrease turnover. Managers can improve their chances of keeping skilled workers and attaining organisational success by including employee views into decision-making.

Organisations ought to take into account employee perceptions. Additionally, this can boost organisational commitment and lower staff absenteeism. Understanding how employees feel about a healthy work environment can boost commitment and lower attrition, and enhancing employee happiness will boost productivity.

## CARGO HANDLING

In warehouses and logistics centres, the term "cargo handling" refers to all transportation-related activities. The term "cargo handling" refers to all of the tasks performed at warehouses and logistics facilities, including loading and unloading, conveying, storing, picking, and sorting. Costs associated with loading and unloading cargo as well as any claims that may develop over the cargo are all included in the category of cargo handling costs. expenses associated with handling cargo are not included in voyage charter expenses but are incurred



during owner operation. By offering good cargo handling features, the time it takes to handle freight and its associated expenses can be decreased.

### ARTIFICIAL INTELLIGENCE IN CARGO HANDLING

The use of AI is growing across various industries, although its capabilities differ. AI is starting to drive the logistics sector. By removing tedious and repetitive jobs, artificial intelligence has a great potential to speed up and enhance the maritime industry.

### ADVANTAGES OF ARTIFICIAL INTELLIGENCE IN CARGO HANDLING

- Advanced analytics - From a variety of data sources, advanced analytics are used to provide insightful business decisions. This will make sure that your choices are supported by evidence.
- Automated machinery - The maritime sector is affected by AI and automation. By taking into account factors like weather trends and busy/slow shipping seasons, machine learning skills will assist in the interpretation of historical data. Process automation can assist in spotting issues before they arise. This gives time for modifications.
- Safety and enhanced security - Using artificial intelligence, accidents can be minimised. AI can be used to identify threats and other illegal activity.
- Path optimisation - To discover the most effective path to follow, route optimisation would construct optimisation models. The optimum route with the least amount of fuel consumption while taking the weather into account can be predicted with the aid of AI.
- Performance forecasting - Performance forecasting may use the connection between speed and power to forecast performance variations brought on by underwater fouling. To determine the rate of performance degradation of the vessels, you could use previous data.

### KEY TAKEAWAYS

- Congested regions are not appropriate for current navigation tools.
- Low situational awareness, a lack of experienced personnel, a lack of onboard training that is actually useful, and a lack of usable data are all safety challenges.

- The advantages of AI solutions include safer operation, protection in the unlikely event of a mishap, and improved visibility and communication between ships and shore.

### INDUSTRY PROFILE

India has 200 non-major/intermediate and 12 major ports. The largest major port in India is run by the Jawaharlal Nehru Port Authority, whereas Mundra is the biggest private port. First major port that is 100% owned by a landlord is Jawaharlal Nehru Port. In addition, India ranks among the top 5 ship recycling nations and accounts for 30% of the industry worldwide. By volume and value, the maritime transport industry moves over 95% and 68% of the nation's trade, respectively. The entire installed capacity of India's major ports has expanded by more than 76% to 1,561 MTPA in March 2021, and the total volume of traffic that these ports handled in 2020–2021 was 672 MT. India's non-major ports handled about 580 MT of cargo in total.

### COMPANY PROFILE

One of India's 13 major ports is operated by the V. O. Chidambaranar Port Authority. On July 11, 1974, it was deemed to be a major port. It is the third largest container terminal in India and the second largest port in Tamil Nadu. It is a man-made port run by the V. O. Chidambaranar Port Authority. This is Tamil Nadu's second all-weather port and third international port overall. The USA, China, Europe, Sri Lanka, and Mediterranean nations are all served by it.

## II. REVIEW OF LITERATURE

**Mara, S.P. Mokoena (2022)** - A crucial link in the value chain connecting businesses, goods forwarding supports global trade. Users of air and sea transportation link exporters to clients (importers) or the place of final consumption. Ports play an important part in this value chain, but they also help to advance international trade, boost the economy, and build up national wealth. Based on opinions of low customer orientation and service quality, this score was determined. The purpose of this study is to learn more about these users' viewpoints.

**Nike Ardiansyah (2022)** - The smooth movement of products and services is encouraged by the development of crossing transportation at the Bima



port. As a port, this location serves as a key distribution hub for goods and services for the local government and the residents of Bima. Thus, 13.15% of respondents said they were extremely satisfied, followed by 44.85% of respondents who said they were happy. The municipal administration and the people of Bima benefit from the distribution of goods and services and marine transportation supported by Bima Port.

**Umur Bucak (2022)** - The quality of the staff is essential to ensure, particularly the value generation in the ports, taking into account the human component. Employee quality stands out as a result of its ability to withstand the constraints brought on by increased global trade on ports' operational efficiency in recent years. As a result, it is crucial to choose suitable employees for the ports, and an effective solution with dynamic capabilities is required to handle this process. The goal of this project is to create a model for ports' hiring process that is based on dynamic capacities. Dynamic skills should be present in port staff, according to the literature.

**Chi-Chang Lin and Chia-Hsun Chang (2021)** - In the context of logistics operations at ports in Taiwan, this study intends to assess the effects of safety marketing on employee safety climate, safety attitude, and safety behaviour. The first step in doing exploratory factor analysis is to determine the crucial elements of safety marketing and safety atmosphere. The findings show that safety marketing has a favourable impact on the safety environment and employees' attitudes towards safety, but not a substantial impact on employees' behaviour.

#### OBJECTIVES

- To examine how employees feel about the use of AI for cargo handling.
- To assess the key element affecting how employees are perceived.
- To learn about employee awareness of digital technology.
- To make recommendations based on how employees perceive the implementation of cutting-edge cargo handling practices.

### III. RESEARCH METHODOLOGY

#### RESEARCH DESIGN

Descriptive Research is used for this survey. This study's main objective is to ascertain how employees see the use of AI in the workplace. 150 people who work at the VOC Port answered the survey. Both primary and secondary sources are used to compile the data. Information from primary sources is gathered via a questionnaire.

#### SAMPLING DESIGN

In this study, convenient sampling is used. A convenient sample consists of those who are easiest to reach by the researcher. Although it is quick and affordable, this method cannot yield generalizable conclusions because it is impossible to determine whether the sample is typical of the population.

#### SAMPLE POPULATION

Population includes all the employees working in VOC Port and the total population is 202.

Sample size = 150

#### SAMPLING TECHNIQUE

Non-probability sampling was used in this investigation. Individuals in a non-probability sample are chosen using non-random criteria, therefore not every candidate will be included.

#### STATISTICAL DESIGN

The respondents' information was transformed into intelligible form for processing and classification. The resources employed in analysis are

- Percentage analysis
- Chi square analysis
- Correlation
- One-way Anova

#### PERCENTAGE ANALYSIS

A particular class of ratio is one that uses percentage. When comparing two or more data series, percentages are used. Relationship is described with a percentage. The relationship can also be compared using percentages.

$$\frac{\text{No. of Respondents}}{\text{Total No. of Respondents}} \times 100$$

#### CHI – SQUARE TEST

We have a set of observed frequencies from a few experiments, and we want to see if they lend credence to any theories or hypotheses. Karl Pearson created a test to determine the significance of a difference between experimental results and theoretical results that were obtained using a certain hypothesis-testing framework. Goodness of fit is the term for the test.



$$x^2 = \sum(O-E)^2/E$$

$$= \frac{\sum(O-E)^2}{\sqrt{(\sum X^2)(\sum Y^2)}}$$

### CORRELATION

There are numerous varieties of correlation methods. The person or product moment correlation is the most prevalent type, and it is included in the survey systems' optional statistics module. Another variety of this type, known as partial correlation, is included in the module. The latter is advantageous when you wish to examine the link between two variables without taking into account any or two additional variables' effects.

$$\sum XY$$

### ONE-WAY ANOVA

A statistical analysis tool that separates the total variability found within a data set into two components:

- Random factor
- Systematic factor

The random factor does not have any statistical influence on the given data set, while the systematic factors do. The ANOVA test is used to determine the impact of independent variables have on the dependent variable in a regression analysis.

### ANALYSIS AND INTERPRETATION PERCENTAGE ANALYSIS

**Table: 1 – Experience of the Respondents**

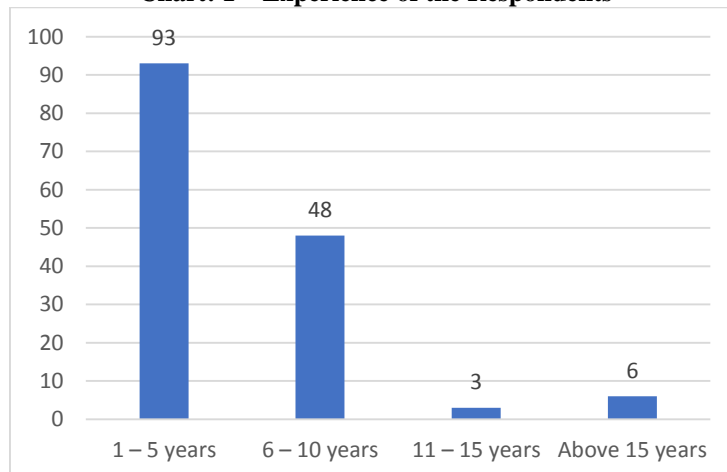
Sl. No	Experience	No. of Respondents	Percentage (%)
1	1 – 5 years	93	62
2	6 – 10 years	48	32
3	11 – 15 years	3	2
4	Above 15 years	6	4
<b>TOTAL</b>		<b>150</b>	<b>100</b>

(Source: Primary Data)

### Inference:

The table 1 shows the experience of the respondents. 62% of the respondents have an experience of 1 – 5 years, 32% of the respondents have an experience of 6 – 10 years, 2% of the respondents have an experience of 11 – 15 years and 4% of the respondents have an experience of above 15 years.

**Chart: 1 – Experience of the Respondents**





**Interpretation:**

The above Chart 1 shows that the majority of the employees have an experience of 1 – 5 years.

**Table: 2 - AI implementation at workplace will reduce their workload**

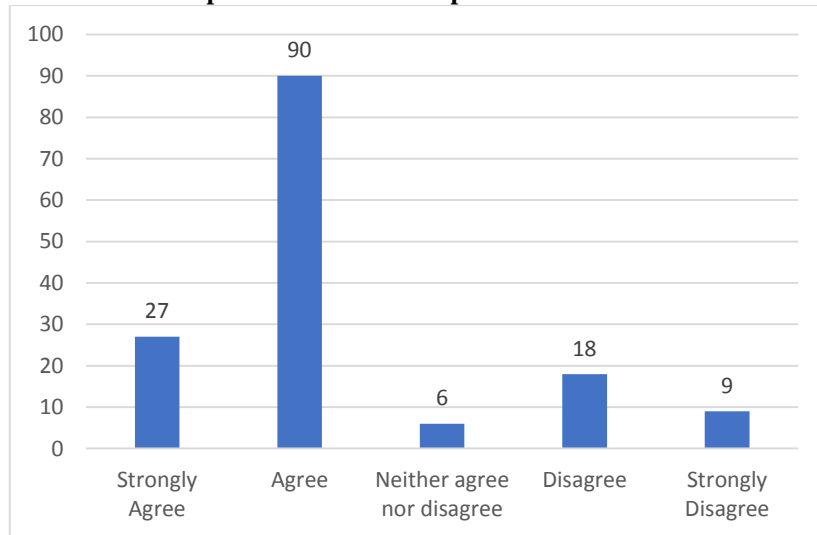
Sl. No	Description	No. of Respondents	Percentage (%)
1	Strongly Agree	27	18
2	Agree	90	60
3	Neither agree nor disagree	6	4
4	Disagree	18	12
5	Strongly Disagree	9	6
<b>Total</b>		<b>150</b>	<b>100</b>

(Source: Primary Data)

**Inference:**

The table 2 shows the statement of the respondents on AI implementation at workplace will reduce their workload. 18% of the respondents strongly agrees the statement, 60% of the respondents agrees the statement, 4% of the respondents neither agree nor disagree the statement, 12% of the respondents disagrees the statement and 6% of the respondents strongly disagrees the statement.

**Chart: 2 - AI implementation at workplace will reduce their workload**



**Interpretation:**

The above Chart 2 shows that the majority of the employees agrees the statement “AI implementation at workplace will reduce their workload”.



**Table: 3 – Satisfaction Level of employees in AI implementation change in cargo handling**

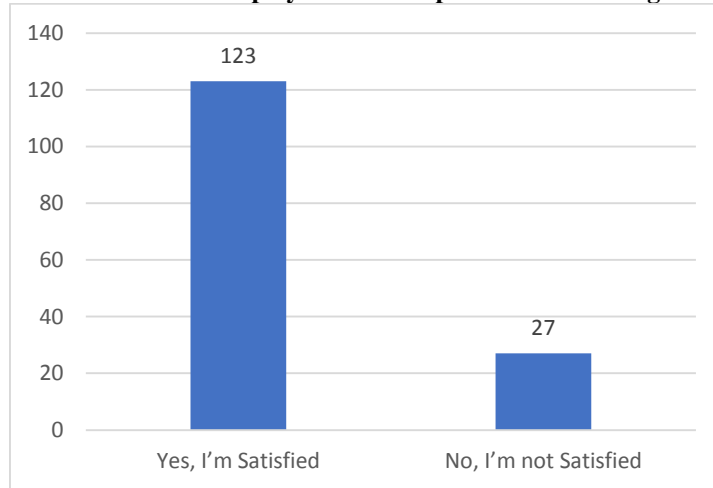
Sl. No	Description	No. of Respondents	Percentage (%)
1	Yes, I'm Satisfied	123	82
2	No, I'm not Satisfied	27	18
<b>Total</b>		<b>150</b>	<b>100</b>

(Source: Primary Data)

**Inference:**

The table 3 shows the satisfaction level of the employees on AI implementation change in cargo handling. 82% of the employees are satisfied with AI implementation change in cargo handling. 18% of the employees are not satisfied with AI implementation change in cargo handling.

**Chart: 3 – Satisfaction Level of employees in AI implementation change in cargo handling**



**Interpretation:**

The above Chart 3 shows that the majority of the employees are satisfied with AI implementation change in cargo handling.

**CHI SQUARE ANALYSIS**

**Relationship between Age of the employees and Satisfaction level of the employees**

**Hypothesis Testing:**

**Null Hypothesis (Ho):**

There is no significant Relationship between Age of the employees and Satisfaction level of the employees.

**Alternative Hypothesis (H1):**

There is significant Relationship between Age of the employees and Satisfaction level of the employees.

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Satisfaction	150	100.0%	0	0.0%	150	100.0%

Age * Satisfaction Crosstabulation				
Count				
		Satisfaction		Total
		Satisfied	Not Satisfied	
Age	25 - 35 yrs	76	17	93



	36 – 45	38	10	48
	46 – 55	6	0	6
	Above 55	3	0	3
	Total	123	27	150

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.242 <sup>a</sup>	3	.524
Likelihood Ratio	3.828	3	.281
Linear-by-Linear Association	.586	1	.444
N of Valid Cases	150		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .54.

**Interpretation:**

From this test, the minimum expected count is 0.54 but the low cells have an expected count less than 5. So, the Null hypothesis is rejected and it accepted the alternative hypothesis. There is significant Relationship between Age of the employees and Satisfaction level of the employees.

**CORRELATION ANALYSIS**

**Relationship between AI implementation at workplace will reduce your workload and AI implementation will not increase the workload**

**Hypothesis Testing:**

**Null Hypothesis (H<sub>0</sub>):**

There is no significant Relationship between AI implementation at workplace will reduce your workload and AI implementation will not increase the workload.

**Alternative Hypothesis (H<sub>1</sub>):**

There is significant Relationship between AI implementation at workplace will reduce your workload and AI implementation will not increase the workload.

Correlations			
		AI implementation at workplace will reduce your workload	AI implementation will not increase the workload
AI implementation at workplace will reduce your workload	Pearson Correlation	1	.843**
	Sig. (2-tailed)		<.001
	N	150	150
AI implementation will not increase the workload	Pearson Correlation	.843**	1
	Sig. (2-tailed)	<.001	
	N	150	150

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Interpretation:**

The above table shows that the Coefficient of Correlation between Relationship between AI implementation at workplace will reduce your workload and AI implementation will not increase the workload after obtain 0.843. It is below 1. So, there is positive relationship between AI implementation at workplace will reduce your workload and AI implementation will not increase the workload.

**ONE WAY ANOVA**

**Relationship between Experience of the employees and AI implementation at workplace will reduce your workload.**

**Hypothesis testing**

**Null hypothesis(h<sub>0</sub>):**

There is no significant relationship between Experience of the employees and AI implementation at workplace will reduce your workload.



### Alternate hypothesis( $h_1$ ):

There is significant relationship between Experience of the employees and AI implementation at workplace will reduce your workload.

ANOVA					
Experience	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	14.702	3	4.901	4.485	.005
Within Groups	159.538	146	1.093		
Total	174.240	149			

### Interpretation:

The above table shows that the P value (0.005) is less than 0.05. so, there is significant relationship. Sum of squares within group and between groups values have 14.702 and 159.538 respectively based on AI implementation at workplace will reduce your workload with respect to the Experience of the employees. Hence it is accepting alternative hypothesis. Thus, rejecting null hypothesis.

## IV. FINDINGS, SUGGESTION AND CONCLUSION

### FINDINGS

- The majority of employees are satisfied with the changes brought about by AI implementation in the freight handling industry.
- Staff members think implementing AI will lighten their workload
- Workers additionally believe AI has more advantages than disadvantages.
- The majority of workers believe that implementing AI will help them finish their everyday tasks quickly and easily.
- The majority of employees are not opposing the enterprise's adoption of AI.
- The employees' belief that artificial intelligence can boost organisational productivity.

### SUGGESTIONS

- To keep people in the company for a long time, artificial intelligence should be used in the workplace with greater benefits and no difficulty for them.
- Only the use of artificial intelligence can handle an organization's increased production. Therefore, the management will gain additional advantages. For the purpose of keeping personnel, it should be altered so that both employees and management receive greater benefits on an equal basis after the introduction of artificial intelligence.
- Implementing artificial intelligence shouldn't affect employees in any way. The management of the company will benefit more from the

improvements in technology, and the employees should also benefit from them. Therefore, only the company can keep its staff. Following the adoption of artificial intelligence, the workload of the staff will decrease. Therefore, the company shouldn't strive to reduce employee pay because it can lead to conflict within the company.

- Due to the use of artificial intelligence, the employees shouldn't lose direct control over their work or lose sight of their significance inside the organisation. If it does, the organisation could suffer a significant loss.

The management should be aware of the concerns and ideas that the staff has regarding the application of artificial intelligence as well as the challenges that they have encountered. and offer answers to the issues the staff members are experiencing. Additionally, management needs to allay staff members' concerns about the deployment of artificial intelligence.

### CONCLUSION

In most industries, adoption of artificial intelligence is rising. By removing tedious and repetitive jobs, artificial intelligence has a great potential to speed up and enhance the maritime industry. In order to utilise artificial intelligence in cargo handling effectively, it is necessary to have the finest employee perspective. According to the research, employees receive excellent support and top-notch welfare programmes. The majority of respondents are happy with how artificial



intelligence is changing business, and they think that using it will boost employee performance, an organization's production and growth, and speed up the completion of daily activities. As a result, the organization's staff members are happy with the way artificial intelligence has been incorporated into their working environment.

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