

# Factors that Lead to the Supply Chain Safety Compliance in Air Cargo Industry

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**Abstract** - This study aims to determine the factors that lead to the supply chain safety compliance in Air Cargo in Malaysia. By using the purposive sampling technique, the questionnaires were distributed to the selected respondents for the gathering of data and analysis purposes. It was found that, organisational commitment, employee involvement, and safety training factors have a positive significant influence towards supply chain safety compliance evaluation. Moreover, the safety training factor showed the most significant influence as compared to the others. However, the study found the insignificant relationships between personal protective equipment (PPE) factor with supply chain safety compliance in workplace practices. Workers were lacked awareness on how to comply with safety regulations, especially when it came to wearing safety equipment while handling the movement of material in supply chain processes. This will be a main concern of industry, especially for the Air Cargo Industry, to take more proactive steps in tackling the safety compliance issues occurrences and in achieving the Occupational Safety and Health (OSH) best practices in supply chain activities related.

**Keywords** – Safety compliance, Supply Chain Practice, Organisational commitment, Employee involvement, Safety training, Personal protective equipment

## 1. Introduction

Safety is a crucial part in an organisation as it is related with risks in many industries, including the transition process involve from the suppliers to the customer. Unfortunately, there is no exception, even small organisations are exposed with hazards

and accidents in the workplace [1]. This issue simultaneously, directly or indirectly will interrupt the process of the supply chain involved while conducting the inbound or outbound process especially in Air Cargo Industry. The globalisation and continual outsourcing lead companies to participate actively on a supply chain activity. As a result, it will increase the complexity of supply chain transition where it may involve multiple parties throughout the process [2]. This trend of networks chain has its implication for the working conditions, health and safety of workers or supplier and contracting companies to comply with safety compliance entirely.

Regarding that, organisations need to create a strategy to promote workplace health and safety, and to take steps to eliminate or minimise the hazards. Moreover, by regularly inspecting the equipment and tools, they can be well maintained and safe for use by workers [3]. Additionally, by attending safety training, wearing safety equipment, and taking more safety precautions, workers may avoid getting any injuries and coming into contact with hazards. Due to few different actors involve in supply chain networks, the European Agency for Safety and Health at Work (EU-OSHA) has specifically focuses on two main networks or relationship between companies and supply chain members [2]. The first strategy is focusing on primary network which is between company and its suppliers of certain goods and materials, while the secondary network as the second strategy focus more on the network of company and its contractor/ subcontractors that provides specific services such as maintenance, cleaning services etc. Both networks involve in Air Cargo process plays a different approach of

strategies in promoting the safety compliance among the different supply chain actors.

Based on random interviews with Safety Officers and Health Department staff with several Air Cargo workplaces in Malaysia, most of the department objectives were to achieve zero-accidents. According to organisational data, the highest root-cause of accidents was human error factors, followed by the environment, machines, methods, and materials factors. The reason why the workers did not comply with the safety rules is because they were negligent, such as workers not wearing personal protective equipment (PPE), not attending safety training, using transportation without airport permits and others. Furthermore, another incompliance that the employees committed in the workplace was that new staff members would operate the forklift without training while loading the materials. New staff members are supposed to have a proper training before handling any equipment, materials or methods in the workplace [3]. These safety and health issues data reported, calculated all workers including immediate workers (hired workers) by Cargo companies and Subcontractor workers that work for the Cargo companies involved in supply chain activities.

Moreover, past studies showed that safety in the workplace has been an increasing concern among organisations due to the consequential nature of occupational injuries and accidents, and more than 80% of why occupational accidents and injuries take place at work has been reported as being caused by human errors [4]. According to previous studies, supply chain safety compliance is related to the activities that workers need to do in order to maintain workplace safety in supply chain work related process [1]. Starting from the safety policy, codes of practise, sustainability and environmental concern until entire workers welfare regarding on OSH matters. The studies also show that the reason workers did not comply with the safety rules was because of a lack of knowledge or awareness of the rules and regulations and even though the employees knew of the rules and regulations, they would choose not to adhere to them [5]. Some of the workers' behaviours were like their reluctance to comply with the safety rules which could be associated with the hazards and their consequences or ignorance about the correct usage of personal protective equipment (PPE) [6].

For many companies, a supplier code of conduct in safety compliance is a part of element included in corporate values agreement and seen as an affirmation to the OSH requirements along the network processes [7]. Basically, it requires safe and healthy working environments code of practice and increasingly provide more detailed health and safety standards. Codes of conduct are critical to establishing and managing expectations for both customers and suppliers. The involvement of other supply chain actors like sub-contractors in providing an adequate OSH for their workers indicates a major concern at all levels of the interaction between the parties [2]. Begins with the selection precontract stage through assessment of sub-contractor competence, then assess the job execution via close cooperation of all parties and appropriate levels of supervision. The final stage of contract termination, it ends by reviewing and recording the OSH performance of workers by looking at the supply chain safety compliance elements throughout the processes. This approach oriented will lead for a better solution that ensure reliable and safe subcontracted tasks performed [7].

The failure to follow safety rules can lead to injuries, ill health or even the death of the workers, as well as cause damage to the workplace and work equipment. All those things incur large costs and effect all supply chain members involve within the network due to the workers' negligence towards safety in the workplace. In addition, it also incurs the cost of working days lost through sickness or absences issues [5]. Companies can take disciplinary action or dismissal if workers fail to comply with health and safety laws. In this context, this research has been conducted to study the determinant factors that leads to supply chain safety compliance in Air Cargo industry. Thus, this paper wanted to study the four factors which are organisational commitment, workers' involvement in safety, safety training, and personal protective equipment elements of factors that determined can influence supply chain safety compliance specifically focus on chain activities practiced in Air Cargo industry.

This study has reviewed previous literatures related to this field and has shared the valuable insights and information about the factors related to safety compliance in achieving the supply chain performance in Air Cargo industry. It also attempts to promote safety and health good practices through supply chain process among the

workers either the suppliers or contractors in workplace. The factors for the future improvement of the organisations have been crucial for this study to figure out. This will help the Air Cargo industry to identify the obstacle factors that prevent achieving the key performance index (KPI) goals. The paper is structured with the introduction in the beginning section, followed by the literature review, methodology, findings, and discussions of the review. In the subsequent section, the opportunities for future research are presented and it ends with the conclusion of the study.

## 2. Literature Review

### 2.1 Supply Chain Practices in Air Cargo Industry

A large number of the supply chain network standards and coordination arrangements connected today were created in a period in which maintainability, wellbeing and security were most certainly not foremost determinants [9]. The fundamental of the effectiveness of supply chain practices not only concern about the major principles only but also concern about the safety compliance involve along the process involves such as shippers, re-use of material, handling product and so on.

Besides the common sustainability supply chain practices perspective, sustainable transportation can enhance the security and safety, especially when all the cargo in the delivery bear the significant risk, as well as fewer accidents from the reduced transportation to facilitate the process in the value chain [10]. These concepts of ideas satisfy in maintaining the corresponding value chains that should be accelerated in supply chain practices. Regardless, the aim for sustainability and efficiency practices should consider in all aspect safety and secure compliance including all transport modes especially in Air Cargo industry.

Previous research has attempted to define a suggested parameter from which supply chain practices, safety and security in a broad aspect [11]. This includes the economic feasibility, environmentally friendly, climate neutral, safe for workers and society as well as the compliance stipulated in rules and regulation are those issues that can be solved to ultimately contribute to a sustainability and high quality of supply chain management practices. As concerned by this

study, the safety compliance has been identified to be the main determinants in significantly influence the performance of supply chain practices in the Air Cargo industry.

### 2.2 Safety Compliance in Supply Chain

Safety compliance plays an important role in an organisation and is defined as adhering to safety procedures and carrying out work in a safe manner [7]. According to previous research studies, researchers have stated that there are only six factors that have been found to be significant; they are organisational commitment, safety training, safety participation, safety procedure, and workers' involvement in safety [8]. These factors have similarities with previous research [12].

There are several benefits when effective safety compliance is applied in an organisation such as, a safe workplace can contribute to sustainable expansion, which is crucial to poverty reduction. This is not exception for Air cargo Industry as well. Next, occupational safety and health can contribute to improving the employability of workers, through workplace (re) design, maintenance of a healthy and safe work environment, training and retraining, and assessment of work demands [13]. With the benefits stated, it is essential for an organisation to demonstrate that when a business is addressing its safety and health obligations, it shows that the organisation is committed to working within the safety and health principles, has a recorded safe and system of work, communicates with the workers, and is consistent with the compliance of safety rules [14].

Moreover, the reason why safety compliance is important in the workplace is that, it can create a productive environment. Commitment by the organisation in properly managed safety programmes tends to create a great safety culture where employees work in a safe environment [2]. Keeping a higher standard in the workplace by having a high degree of cleanliness, and do regular housekeeping in the workplace, will keep the workplace at a higher standard and have less probability of accidents occurring. In addition, having a safety programme in the workplace, can lead to the absenteeism being reduced because the workers want to work in a safe environment instead of a bad or unsafe working environment. Furthermore, by following the safety compliance, an organisation can produce happier employees

because of providing a safe work environment. In addition, it can help the employees to work more efficiently [15].

Promoting safety compliance in supply chain activities can be seen clearly as follow or believing in the safety procedures and carrying out work in a safe manner a cross the networks of supply chain parties. As for past studies, they have proven that supply chain safety compliance is important in reducing the accidents and injuries in the workplace as well as maintain the safe environment to all [9]. As for the Air Cargo industry, safety has become important because workers are involved closely with dangerous materials and tools. If there is no knowledge or skills, signage or assistance to handle the materials, drive forklift or other tasks, an accident or injuries can easily happen. As for that, organisational commitment, workers' involvement in safety, safety training, and personal protective equipment factors are the guideline if anything should happen.

Companies may use a variety of instruments to influence the members of its supply chain in applying sustainability practice that focus on OSH standards. Looking at these both integration, two main strategies to implement sustainability and safety compliance in supply chain have been identified [16]. The first strategy focusses on primary network which is the relationship network between company and its suppliers. This is called as 'supplier management for risks and performance' strategy. Concerning about the reputation issues due to safety and health problem raised, they consider adding environmental and social standards to complement economically based supplier evaluation [2]. Meanwhile, the second strategy which focus on secondary networks type on chains involves between company and its (sub) contractors is called 'supply chain management for sustainable products' strategy. The initiatives related with safety compliance undertaken by individual companies or (sub) contractors. However, the company will ensure the execution adhere with the safety compliance code of practice for the environmental concern of products throughout the supply chain activities.

### 2.3 Organisational Commitment

The commitment to the organisation is a vital element in the success platform in any organisation [16]. Moreover, there are some factors that can be described as organisational

commitment, such as employers who 'want to' be committed towards their workers and organisation will create what is necessary and sustain an attractive work environment. The committed employer desires to be known as providing the 'best place to work' [17]. It is obvious that monitoring hazardous situations, providing appropriate physical working environments, rewarding and giving acknowledgment, cultivating the growth of friendship and companionship, and watching over the employees' fitness in their jobs can all together create an effective and competent working environment. Organisations should plan working environments to increase the level of organisational commitment and enthusiasm and expand throughputs [18]. Hence, there are a few tools that management can adapt with the working environment to increase productivity; contain noise, waste, and hazard control, improve friendship; make a more humane environmental setting, watch over employee's fitness in their jobs; reward, provide opinions, demonstrate the appropriate working environment, increase the superiority of business life, and create suitable physical working conditions as stated by [19]. In this way, employees can be retained.

According to [20], the finding in the article stated, safety and health have been found to be positively and significantly related to organisational commitment. Therefore, evolving employees' work practices in organisations has a significant effect on the employees' organisational commitment when work is being carried out. Clearly, with the strong commitment of the organisations for workplace safety, there will be increased employee performances and better attitudes as well as a decrease in the hitches related to occupational safety. This shows that the commitment from an organisation plays an important role towards the safety of the employees in the organisation. Without organisational commitment, the employee will work in an unsafe condition. Thus, organisational commitment has to be driven from the top to the bottom and will significantly contribute to the safety compliance in the organisation.

The supporting factors from management for implementing sustainable supply chains especially toward safety compliance was found as the most frequent barrier factors in company [15]. It includes the communication conflict, higher costs, coordination effort and complexity in the supply chain networks. Besides, the management systems

certainly imply the higher cost in joining all the efforts in all supply chain partners. However, this can help and control by proper management of costs calculated that really helps in improving the safe working environment.

#### 2.4 Employee Involvement

The employees' involvement in safety management activities is one of the most effective approaches to preventing accidents at the workplace. This will promote each employee's awareness, instil an understanding of the comprehensiveness of the management practices and allow the employees to be part of the system. Employees have the rights to have enough information about safety in the workplace and other related information to enable them to participate effectively in any safety programme [21].

Furthermore, the workers' involvement in safety is a behaviour-oriented method where it involves the flow of communication and decision-making from bottom to top. The degree of participation in safety activities will depend on the employee's contribution in the decision-making process [16]. Moreover, injury rates are significantly related to employee participation in the decision-making process. Their active participation should help in reducing injury rates at the workplace [22]. Thus, employee participation and a conducive working area were found to be the main factors to safety activities in an organisation. Employee attitude and behaviour are the driving factors to ensure that the desired results are achieved in implementing safety practices at the workplace. Employees whose ideas are considered by their employer tend to participate in the safety activities conducted at their workplace [23]. Thus, it will increase the safety performance in their organisation as mentioned in [21]. According to past research findings, the relationship between the workers' involvement in safety in regard to safety compliance seems like a natural reaction from the employees' side for empowering and involving them in safeguarding themselves [6].

The supply chain actors involved throughout the process includes the hired workers by Air Cargo and (sub) contractor workers work for the Air Cargo service. Both categories of workers directly and indirectly involve within the chain of process, simultaneously responsible to follow and commit

with the safety compliance stipulated by the company.

#### 2.5 Safety Training

Safety training is needed in every industry. It is one of the practices in safety management that have been widely used as a determinant of safety performance across occupations and industries. It helps workers in getting knowledge, changing attitudes, or performing safety work behaviours [17]. In addition, [24] stated that, safety training is the process in which employees gain or expand knowledge to use it professionally and become skilled in new areas or acquire incentives to perform a job in a specific way to work safely. Moreover, safety training is a defence for employees against accidents and dangerous situations. Effective safety training is the greatest success for occupational safety and health programmes because it leads to developing behavioural skills, gaining related information and/or attitudes, and it acts as a substance for predicting accidents, especially for new employees. In order to enhance occupational safety and health performance, it takes two parties to make it a success; they are the individual and the organisation. As such, the management should set up systematic, comprehensive safety and health training programs for the new employees, provide a mentor for them, and use a partner system to help orient them to the safety, health, and quality system as stated by [16].

Apart from that, safety training is important to guarantee that the employees are in a safe workplace condition to prevent and control any unpredictable causes. According to [26], safety training is known as 'acquiring knowledge of emergency procedures and preventive actions where there is instruction in hazard recognition and control measures, learning safe work practices, and proper use of personal protective equipment'. The training has been recognised as the most important characteristic of an organisation with a successful safety programme which can enhance skills and knowledge of safety in the workplace.

Hence, as suggested in the findings, safety training plays a crucial part in employee safety compliance. It is a benefit to an individual in improving his or her morale and maintaining a healthier status; whilst, for the organisation, it will reduce compensation costs, lower employee

turnover, reduce insurance premiums, reduce lost time, and provide efficient and motivated workers and, consequently, improve productivity as well. The findings also provide evidence for practitioners on the weaknesses in their safety training practices for safety improvement and the meta-analytic findings show that insightful safety training is positively related to safety compliance and participation [1].

## 2.6 Personal Protective Equipment

Personal protective equipment or PPE is used to protect the employee from hazards in the workplace that exposes or leads to injuries or illness resulting from contact with chemical, physical, electrical, or other workplace hazards [26]. A survey conducted by safety professionals found that, when employees do not comply with the PPE protocols, it will be an issue in the workplace. Other reasons found were that, the worker was not comfortable, felt it was not necessary, was too hot, it fit poorly, and was unattractive looking when using the PPE. In the findings in the article in [27], the authors agreed that they found no practice of using the PPE amongst the workers. This is an unethical behaviour because workers must wear the PPE to make sure their safety is ensured; in addition, employees had negative attitudes towards PPE [27].

Nowadays, there are many types of PPE which have been developed to tackle this scenario. The effectiveness and usability still remain incomplete. Thus, a new breakthrough for PPE is currently required. Furthermore, even though protection of targeted harmful factors is successfully achieved by using PPE, such high performance of protection is likely to entail additional workloads on the workers [18]. When designing and developing PPE, it is important to achieve both protective performance and thermal comfort considering its thermal properties. For example, when working around hazards, it mandates the use of bump hats which protect against minor bumps and abrasions [27].

The employer is responsible for determining whether workplace hazards exist that require employees to use PPE, for selecting the type of PPE that will be used, and for making sure that employees know how to use the PPE and how much protection it will provide [29]. Moreover, most people in the aviation industry recognise that

safety is a very important part of the job and are very adjusted to the safety requirements. Also, the maintenance-safety class is intended to keep maintenance personnel aware of what they are doing.

Supply chain work related activities such as maintenance work can also imply the exposure of workers to the hazards that arise in significance of maintenance tasks. Therefore, the usage of personal protective equipment among the workers in performing all related chain activities is crucial for operations essential [2]. Otherwise serious and fatal accidents or disease problems can happen especially in Air Cargo Industry. This kind of industry is exposed to physical hazards such as noise from the plane traffic, forklift truck while transferring, extreme temperature to direct sunlight and many more. Therefore, it is worthwhile that the company and (sub)-contractors, combine efforts to implement the best practices specially the important of personal protective equipment (PPE) to ensure the reliability of safety compliance achieved [16].

## 3. Research Model and Hypotheses Development

As for this study, the conceptual framework has been developed which displays the relationship between the independent and dependent variables. It has included four (4) independent variables and a dependent variable for this study. The independent variables that influence supply chain safety compliance in Air Cargo industry which are organisational commitment, employee involvement, safety training, and personal protective equipment (PPE) factors were identified. Meanwhile, the dependent variable of this study, supply chain safety compliance factors is used as the key element to measure the integrated between both variables. According to the theoretical framework construct (Figure 1), four hypotheses have been developed in this study.

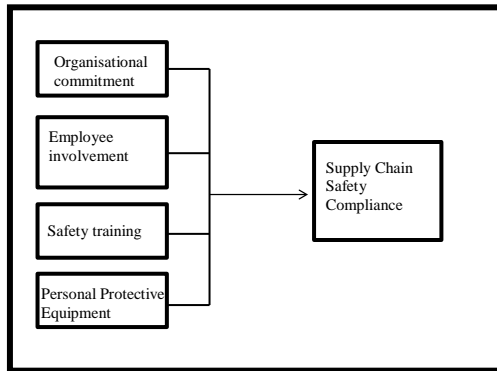


Figure 1: Conceptual Model

Previous studies mentioned in the articles that there has been significant positive relationships found between organisational commitment and supply chain safety compliance, thus organisational commitment was found to predict supply chain safety compliance directly [6]. Moreover, organisational commitment has direct influence on safety compliance and has been considered as an outcome of the individual wisdom of the workers related to supply chain work process. [21] also stated that safety programme initiatives must be driven from the top to the bottom and the employer's active participation will significantly contribute to the supply chain safety performance in an organisation. Hence,

**H1** – The organisational commitment factor has a positive significant influence towards supply chain safety compliance.

The finding also discovered a significant positive relationship between employee involvement and supply chain safety compliance amongst health facilities. Moreover, the article also stated that employee involvement was positively related to safety compliance in supplier network either company or (sub) contractors [1]. Hence, the involvement of the employee in a vital factor in the workplace safety programme as an effort taken within the chain processes [6]. Hence,

**H2** – The employee involvement factor has a positive significant influence towards supply chain safety compliance.

selected criteria as a respondent and the sampling frame techniques needed to be considered. The questionnaire surveys were distributed to the major targeted sample of this study by using the purposive sampling technique. The purpose of using this sampling technique was because most of the employees selected were exposed and involved with the supply chain activities in Air

Safety training is a very significant factor in determining the supply chain safety compliance in other sectors, such as in health facilities [1]. Therefore, there is a need for the organisation to focus more on safety training and worker involvement to ensure safety compliance in the value chain. A previous study by [6] claimed that, safety training programmes may be conducted regularly, and the participation may be made compulsory.

**H3** – The safety training factor has a positive significant influence towards supply chain safety compliance.

A survey conducted by safety professionals found that when employees do not comply with PPE protocols it will be an issue in the workplace. The Personal Protective Equipment Healthy Working Lives showed that the PPE should be suitable, meet the needs of the individual, be appropriate for the risk involved, consider the state of the health of those people using it, and if more than one type of PPE were used, they should be compatible with one another [25]. Accordingly,

**H4** – The Personal Protective Equipment (PPE) factor has a positive significant influence towards supply chain safety compliance.

#### 4. Research Methodology

The questionnaires were distributed to targeted respondents from several identified departments only, which were the Aircraft handling department (AHD); Cargo department (CD); Facility equipment and maintenance department (FEM); and Security, safety health, and environment (SSH) department, at four (4) Air cargo airports selected in Malaysia. The response percentage of the respondents was 100%, which was equal to 108 of the total respondents answering the questionnaire. The data collected has been analysed using the IBM SPSS Statistic Version 25. To make this study a success, the population selected had to meet the

Cargo processes. The total population of 150 combined self-employed workers and (sub) contractors' workers was gathered from the list given as a sampling frame and the sample size was identified as 108 workers, chosen randomly [26]. To ensure the accuracy of the result obtained, the questionnaire had been analysed and discussed through frequency analysis, correlation

analysis, and regression analysis for both the independent and dependent variables.

## 5. Findings

### 5.1 Demographic Analysis

In this section, the results of the content analysis are presented, with the first illustration depicting the summary of the four Air Cargo as the population of the study (Table 1). Followed by the distribution analysis, correlation analysis, and lastly, the hypothesis testing result by the regression analysis.

Table 1: Summary of Population by Department

Airport / Department	A	B	C	D
AHD	9	8	12	14
CD	13	7	11	12
FEM	10	9	14	13
SSH	4	3	5	6
Total	36	27	42	45

As we can see in Table 1, a total of 150 employees had been given in the lists gathered at each location. The majority of the sample focused on Air Cargo D with a total targeted population of 45 employees, followed by Air Cargo C, A, and B, respectively. With the total number of the population gathered, 108 questionnaires were distributed equally according to the availability of the respondents from the lists given. The summary of the details for the demographic descriptive analysis is showed in Table 2.

Table 2: Demographic Profile

Profile	Frequency	Percentage (%)
<b>Department</b>		
AHD	28	25.9
CD	35	32.4
FEM	25	23.2
SSH	20	18.5

respondents had worked from 5 to 9 years with the percentage of 22.2%, and for 10 years and above of working experience there were about 27 respondents with the percentage of 25.0%. This study has concluded that, the respondents who had been working from 1 to 4 years (28.7%) had more awareness about safety compliance compared to the other respondents who had been working for a longer term with more experience. This shows that they were still fresh in knowledge about safety

<b>Gender</b>		
Male	87	80.6
Female	21	19.4
<b>Age</b>		
18 – 23 years	26	24.1
24 – 29 years	41	38.0
30 – 39 years	21	19.4
40 years and above	20	18.5
<b>No. of Experience</b>		
Less than a year	26	24.1
1 – 4 years	31	28.7
5 – 9 years	24	22.2
10 years and above	27	25.0

Based on Table 2, 28 respondents were from the Aircraft Handling (AHD) Department with the percentage of 25.9% and 35 respondents were from the Cargo Department (CD) with the percentage of 32.4%, while 25 respondents were from the Facility, Equipment, and Maintenance Department (FEM) with the percentage of 23.2%, and lastly, 20 respondents with the percentage of 18.5% were from the Security, Safety Health, and Environment Department (SSH). The result also generated that 87 respondents were male with the percentage of 80.6% while the other 21 respondents were female with the percentage of 19.4%. This shows that the number of male workers was higher than the female workers at the Air Cargo operation sites.

As for the age groups of the respondents, 26 respondents were from the age range from 18 to 23 years old with the percentage of 24.1%, 41 respondents were from the age range from 24 to 29 years old with the percentage of 38.0%, 21 respondents were from the age range from 30 to 39 years old with the percentage of 19.4%, and lastly, 20 respondents were from the age range of 40 years old and above with the percentage of 18.5%. The number of years working experiences showed that, 26 respondents had worked less than a year with the percentage of 24.1%, 31 respondents had worked from 1 to 4 years with the percentage of 28.7%, 24 compliance and were still aware of safety in the working areas. This was followed by the 10 years and above working experience respondents. At 25.0%, it can be concluded that experienced workers also followed the safety compliance protocols even though they had been working in same conditions every day for more than 10 years.



## 5.2 Normality Analysis

Table 3 showed the result of the skewness and kurtosis to show the normality of the data with the

values in from -1 to 1. It proves that the data were normal regarding the statistics.

Table 3: Normality Test

	<i>Skewness</i>		<i>Kurtosis</i>	
	Statistic	Std. Error	Statistic	Std. Error
<b>Safety Compliance</b>	0.677	0.481	-0.260	0.935
<b>Organizational Commitment</b>	0.010	0.481	-0.125	0.935
<b>Employee Involvement</b>	0.035	0.481	-0.290	0.935
<b>Safety Training</b>	-0.860	0.481	-0.171	0.935
<b>Personal Protective Equipment</b>	-0.956	0.481	0.489	0.935

Referring to the table above, the supply chain safety compliance was approximately normally distributed with the skewness of 0.677 (SE 0.481) and kurtosis of -0.260 (SE 0.935). Organisational commitment factor had the skewness of 0.010 (SE 0.481) and kurtosis of -0.125 (SE 0.935), and this was followed by employee involvement factor with the skewness of 0.035 (SE 0.481) and kurtosis of -0.290 (SE 0.935). Meanwhile, safety training factor had the skewness of -0.860 (SE 0.481) and kurtosis of -0.171 (SE 0.935). Lastly, personal protective equipment (PPE) factor had the skewness of -0.956 (SE 0.481) and kurtosis of 0.489 (SE 0.935). It can be concluded that, the data collected were valid and good enough to be

analysed in order to achieve the objective of the study. The data were tested for the hypothesis result that will be revealed next.

## 5.3 Analysis of the relationships

The regression analysis was used to test the hypotheses developed in this study by determining which of the independent variables, organisational commitment (OC), employee involvement (EI), safety training (ST) or personal protective equipment (PPE), in the had a significant relationship with the dependent variable of supply chain safety compliance. The relationships in Table 4 below show the direction between the variables.

Table 4 . Regression Analysis

	<b>Beta</b>	<b>t-test</b>	<b>Significant</b>
(Constant)		1.784	0.077
Organizational Commitment	0.234	2.815	0.006
Workers' Involvement in Safety	0.215	2.549	0.012
Safety Training	0.340	3.998	0.000
Personal Protective Equipment	0.151	1.769	0.080
<b>R<sup>2</sup></b>			0.517
<b>Sig</b>			0.000

Based on Table 4, the beta value of each variable was analysed to see the effect of each independent variable on the dependent variable, while the significant value was analysed to see the significant level of each variable, whether the variable was being supported or not supported. The coefficient of determination (R-square) value generated from the result was 0.517 (51.70%). Therefore, the independent variables, which were organisational commitment (OC), employee involvement (EI), safety training (ST), and personal protective equipment (PPE) factors,

explained 51.70% of the variance for the dependent variable towards supply chain safety compliance. In addition, the other remaining 48.30% was explained by other factors that were omitted from this study.

The result also found that, there were three variables which signified a positive significant relationship and one variable was insignificant between both variables. The acceptable value for significance is  $p > 0.05$ . From the findings here, safety training (ST) factor was statistically

significant ( $t=3.998$ ,  $p<0.000$ ), for organisational commitment (OC) factor, it was positively significant ( $t=2.815$ ,  $p<0.006$ ), and this was followed by employee involvement (EI) factor with a positive significant value ( $t=2.549$ ,  $p<0.012$ ). However, personal protective equipment (PPE) factor was not significant but had a positive directional relationship towards safety performance ( $t=1.769$ ,  $p<0.080$ ), which had a p-value more than 0.05. This indicates that the most significant relationship with a greater influence towards the dependent variable was organisational commitment factor, followed by workers' involvement and safety training factors. Thus, three hypotheses (H1, H2, and H3) were supported by this study of research.

## 6. Discussion

The study had been carried out to determine the relationships between the four (4) identified factors which are organisational commitment (OC) factors, employee involvement (EI) factor, safety training (ST) factor, and personal protective equipment (PPE) factor with supply chain safety compliance in Air Cargo industry. Based on the result revealed above, it shows that the hypothesis (H1), which stated that organisational commitment factor has a positive significant influence on supply chain safety performance, has been supported. The study concluded that when the organisation puts forth higher commitment towards the employees' safety, the more committed the workers will be to comply with the safety rules and regulations in the workplace. In this case, Air Cargo company (host company) need to set up the basic element on safety such as Safety Policy, Manual, Safety target and objective to be practice in during the supply chain activities occurred. Besides, they also need to ensure the supplier or (sub) contractor involved in the process need to have and set up their own safety requirement as an element to be emphasized in network chain activities in Air Cargo industry.

Therefore, the organisations need to take corrective action once unsafe practices are reported, thus it can minimise non-compliance amongst the workers in the workplace. Workers will be more influenced to comply with safety when organization give high priority. This is due to the facts that the workers will be more influence when the organisations walk the talk. This result was also supported by a previous study conducted by [3], where the study had proven the

importance of organisational commitment towards safety, and safety training has been consistently highlighted in the literature. Without organisational commitment, safety interventions are not likely to be effective in preventing accidents and injuries [29]. Organisational commitment reflects the values top management has on safety-related issues and understanding the supply chain network in workplace is paramount towards organisational effectiveness by providing necessary support to engage in safe behaviours while at work.

Meanwhile, the result also found that the hypothesis (H2), which stated that employee involvement factors has a positive significant influence on the supply chain safety compliance practices, had been supported. The study has argued that when an organisation welcomes the workers' opinions and suggestions before making the final decisions on safety related matters, the workers feel that they are important in the organisation. Hence, when the organisation consults with the workers frequently about workplace safety issues, it would create awareness amongst the workers to comply with the safety rules in the workplace, accordingly, and the workers would have directly received the information of the awareness. Moreover, the workers who are involved with safety could help other colleagues to follow the rules and procedures. Workers can give a good example, such as by attending safety training, wearing personal protective equipment, and more to educate their colleagues to make safety a priority in the workplace.

This finding was also supported by a previous study conducted by [5], which mentioned that the relationship between employee involvement in supply chain safety compliance seems like a natural reaction from the employees' side for empowering and involving them in safeguarding themselves. This study was also supported by [1], which reported that when new technologies and materials were introduced, workers used to make suggestions about safety improvement when the process of the decision-making was carried out amongst groups or individuals.

Besides that, hypothesis (H3), as suggested by the study which was safety training factor has a positive significant influence on supply chain safety compliance practices, has been supported as well. This study claimed that, the organisation

gives comprehensive training to the employees in the workplace about safety element related to the supply chain activities either to the self-employed or (sub) contractor prior to the job. Safety training is important to make sure workers fully comply with the safety rules. Moreover, new recruits are trained adequately to help them learn the safety rules and procedures to be more aware of workplace conditions and to comply with the safety protocols, such as wearing safety equipment, attending training programmes that are held specially for the staff and more.

Thus, the researcher believes that, by giving adequate training to the workers, it will enable them to assess the hazards in the company. This can relate with a previous study which mentioned that the main element in an organisation's successful prevention accident plan and any occupational safety and health programme is effective safety training [30]. The behavioural skills, related information, or positive attitudes can be increased. In addition, safety training also provides the means for making accidents more predictable [5]. In addition, [1] mentioned that safety training is a very significant factor in determining the safety compliance in other sectors, such as in health facilities. Therefore, there is a need for organisations to focus more on safety training and worker involvement to ensure safety compliance.

However, based on the result found from the previous chapter, it shows that the hypothesis (H4) regarding the personal protective equipment (PPE) factor had a positive relationship but no significant influence towards supply chain safety compliance in Air Cargo industry. Thus, the hypothesis was not supported by this study of research. Workers lacked awareness on how to comply with the safety rules, especially when it came to wear the safety equipment, such as safety boots, ear muffs, safety gloves, and more [31]. Furthermore, they had never been punished for not using the personal protective equipment while operating their work within the chain processes. It shows that the organisation needs to act accordingly towards the workers. In addition, the signage of using personal protective equipment was insufficient, therefore, the workers not aware. This can show a relation with the next longest number of working years as shown in the demographic profile between 5 to 9 years (22.2%), which indicates that a longer number of working years does not prove that the workers will

comply more with the safety rules. This finding is supported by a previous study conducted by [22], which stated that workers were using safety equipment but had still encountered injuries and occupational diseases. This was due to the reported problems which included that the safety equipment was too heavy, hot or cold, wrong size, unavailable, and unsuitable. In addition, the past study also stated that 46% of the respondents stated that there was no monitoring of the PPE use during the working hours.

## 7. Conclusion

It has, finally, been summarised that the study has successfully accomplished its objective to determine the relationship factors that leads supply chain safety compliance factors in Air Cargo Industry. Organisational commitment (OC) factor, employee involvement (EI) factor, and safety training (ST) factor were found to be the most important aspects for enhancing the supply chain safety compliance elements in this Industry. Meanwhile, the personal protective equipment (PPE) factors towards supply chain safety compliance was not significant which means that this variable had no influence towards the study. According to the result obtained, the study also identified that safety training factors had the most influence and was more significant towards supply chain safety compliance as compared to the other independent variables involved. Therefore, there were three hypotheses (H1, H2, and H3) which were supported in this study and the other hypothesis (H4) was not supported. There are several improvements suggested from this study for future concern. Future studies can gain more knowledge and information about the supply chain safety compliance factors that related in network chain activities involved in workplace. The other OSH elements that can be highlighted in Air Cargo activities such as best practices, certification OSH Standards, OSH facility (signage), Hazard Risk Assessment (HIRARC) considered as important factors calculated in supply chain safety workplace compliance. Besides that, the studies can also use different techniques to obtain the data, such as observations, interviews and others to help the variety of the results gathered get more reliable, normal, and realistic data and information for the studies. In this context, there are several benefits when effective supply chain safety compliance is applied in an organisation, such as a safe chain network activity within the process helps to

contribute the sustainable expansion, which is crucial to poverty reduction as well as the performance of the company itself.

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