

Safety Culture App: An innovation in Safety Performance System at the Aviation Industry

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ABSTRACT: *The purpose of this paper is to consider some of the innovation in improving employee's safety culture in the aviation industry. The aviation sectors are one of the fastest-growing sectors in the world. Establishing a sound and robust safety Culture is essential for ensuring the safety and security of the employees. There are many technological innovations to control the tangible risk but are severely limited with options to tackle intangible risk. One of the common error is a human error which creates most of the hazardous problems. In this context to reduce human error, we propose a Safety Culture App that can address most of the problems to a reasonable extent.*

Keywords: *Safety Culture App, Aviation industry, risk*

I. INTRODUCTION

India's Civil Aviation Industry has been found one of the fastest-growing industries in the country in the past 3 years. It is one of the high-risk prone areas and as in other safety-critical system, errors are inevitable. The root causes of accidents are identified to be human errors. To understand what causes an error, it is necessary to evolve beyond the limited scope of tracing the erroneous action of the individual. Each small error in the system will create countless undetected hazards. Thus many types of research were conducted to reduce the adverse effect of the error on the outcome of a system breach by producing meticulously developed tools, technologies, and procedures to provide the buffer in a system to incorporate error tolerance. Many studies were carried out to come out with a solution and one among them was to implement the concept of safety culture in an organization. Safety culture is a term that nearly everyone uses but few can agree on its precise meaning or how it can be measured. The social as a first, it comprises the beliefs, attitudes, and values often unspoken of an organization's membership regarding the pursuit of safety and the second is more concrete and embraces the structures, practices, controls and policies that organisations possess and employees to achieve greater safety. A combination of workplace safety and large-scale disaster has encouraged a high-risk organisation to encourage the idea of safety culture to reduce the potential workplace incidents and safety with routine tasks.

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Safety Culture plays an important role in determining an organisation's success and failure. So here in this study, we try to propose a new technology to improve safety culture in an organisation. The mode of an individual's interaction with each other has changed widely as mobile technologies and networks are increasingly expanding their capacity and sophistication. From a survey conducted in 2014, it was found that mobile devices can be used as an ideal platform for inspecting behaviour, self-monitoring, and getting personalised feedback and to bring motivational support [1]. In India, almost 233 million people are using smartphones. So it is easy to penetrate people's mind the application of safety using an app. The purpose of this paper is to make a review on challenges faced in aviation industry safety department and also how can it be reduced using implementing safety culture app.

II. LITERATURE REVIEW

Aviation Industry is one of the prominent growing sectors in India. The main issue India is lagging in terms of safety, historically aviation safety was built upon the reactive analysis of past accidents and then corrective actions were taken. But due to the huge reduction in incident occurrence data are very less so there came a necessity of using proactive analysis to reduce safety occurrence in aviation industries [2]. In 2017, 1559 runway incursion of which 256 was vehicle/pedestrian deviation. From the study, it was found out most of the people involved in such cases have no business to enter airfield, but they enter deliberately or inadvertently [3].

We cannot generalise situations in 2 airports, benchmarking is necessary to a limit but it cannot be done throughout. Every airport has KPI on safety and security, the main focus in airports is the role of facility management [4]. It is very important to build a better airport with improved quality and safety systems. It is easy for any aviation safety issue to be drowned by management and it won't come out, keeping these issues in front and centre with the community leaders and common citizen to build a better facility[5]. Much theoretical research has been developed in the field of human factors relating to accident-prone, such as SHELL Model, Reason's Swiss Cheese Model and HFACS. Some of these models are applied in the aviation industries also [6]. There was a range of incidents occurred in aviation and marine due to the team-based interaction with the safety-critical programmable system between December 2001 and February 2003. Here also human error was found to be the primary cause of accidents [7]. The fundamentals and structures of the Safety Management System, need and development.

SMS is to be taught in every aviation industries [8]. The SMS is an integrated approach and comprehensive towards safety based on the assessment of risk and the concept of management.

It mainly consists of 3 basic steps of prevention, control and containment of consequence derived from hazardous events [9]. An integrated model of incorporating risk is ATM technologies, aircraft, staff and crew, routes and weather [10]. This integrated safety performance system designed to be scalable up to European level and applicable to the Single European Sky concept [11]. Considering the airport in terms of logistics, it is the link of the supply chain in air transport that jointly allows expanding the airport internal safety audit scope for sustainable development, security and continuity of the supply chain [12]

III. ANALYSIS

As per EASA norms, each airport should conduct a safety culture survey every 3 years. But most of the airports won't spend time in these surveys. Visited 2 private airports in India and made a study when this survey was conducted last, and it was found out this survey was not conducted past 7 years. Made a pilot study with executive employees in the airport and found out that only 70% of employees got initial safety training.

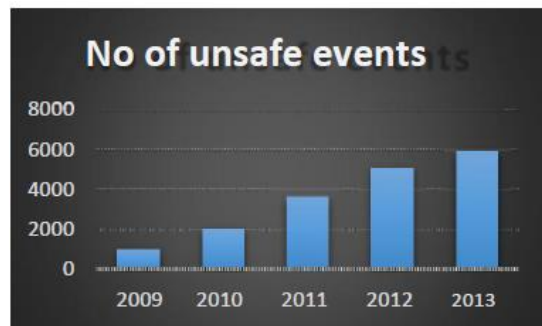


The safety culture survey was conducted based on 6 characteristics: Commitment, Awareness, Adaptability, Justness, Information, and Behaviour

[13]. The output was calculated using the Safety Culture Maturity Model prescribed by Patrick Hudson. From this analysis, we concluded that the main safety issue is human errors and to rectify this safety awareness should be improved. For this after conducting a brainstorming session with people in aviation sector came up with an idea of safety culture app. Before implementing an app a market study is done going to some private airports in India and surveyed to identify people's awareness about safety. The result is being shown below.



Made a literature study on safety issues occurring at 6 airports in China. It clearly stated that every year the safety incidents increase prominently [2].



IV. PROPOSED MODEL

A detailed business canvas model has been developed using sequoia capital model, which shows the distribution channel, how revenue can be generated, what should be the cost structure etc.

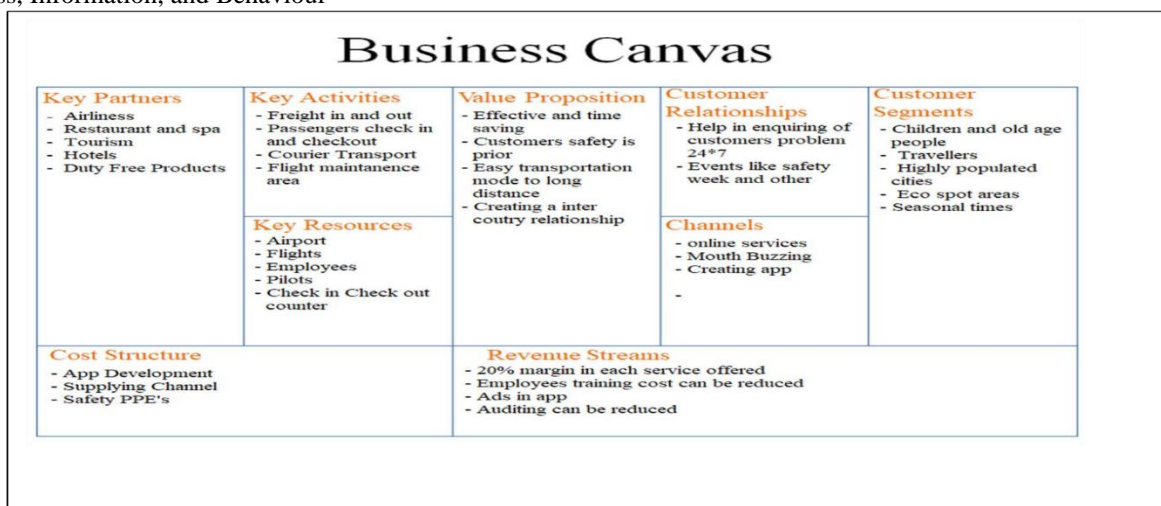


Figure 1: Business Model for safety culture app

Advantages of Safety Culture App

- Safety policies can be updated and notified in the app
- Training sessions can be conducted online
- Report safety issues and queries in it
- Employee retention rate can be increased
- No OSHA audit or fines
- Lower accident rate

V. CONCLUSION

For any country to come forward in terms of quality and service in the aviation industry, safety is one of the predominant factors. Most of the airport is currently technologically sound, the main demerit is to rectify this, a Safety Culture App currently technologically good, the main demerit is human errors. To rectify this, a Safety Culture App is suggested which would bring a huge variation in employees awareness about safety. This is just an initial stage, this app can also be used in other industries also like hospitality, logistics, textile etc.

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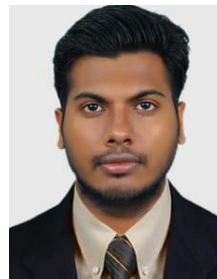
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