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ISSUES AND CHALLENGES IN AVIATION INDUSTRIES

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ABSTRACT:
Airline Industries are safer and more gainful modes of transport in recent times than any time in history, but the Aviation Industry must invent much more rapidly to secure its environmental and financial capability & Safety and Convenience in the future. The objective of this paper is to indicates the Issues & Challenges of the aviation industry along with the possible alternatives to counter the Issues & Challenges. The aviation sectors are playing a vital role in the progress of the economy of our country by contributing as a major source of revenue and earning player of the business society and hence it is quite important to dig deep to entail hidden facts of this aspect. Hence this paper will also motivate the Financial Sustainability aspect of the aviation Industry.
One of the primary challenges in the aviation sector is high operating costs, particularly fuel expenses, maintenance costs, airport charges, and labour turnover costs. The infrastructures constraint such as congested airports, limited runway capacity, and inefficient air traffic management systems leads to delays and poor service quality. Regulatory and policy-related challenges, including stringent safety regulations, complex licensing procedures, and inconsistent government policies, further increase operational complexity.
Human resource challenges, including shortages of skilled pilots, engineers, and air traffic controllers, along with high training costs and work-related stress, also impact the sector. Environmental concerns such as carbon emissions, noise pollution, and climate change have intensified regulatory pressure on airlines to adopt sustainable and eco-friendly practices. Additionally, the aviation sectors is highly sensitive to external shocks such as economic downturns, pandemics, geopolitical conflicts, terrorism, and cyber threats.

Keywords
Safety, Environmental Sustainability, Stringent Safety Regulations, Climate Change, Pandemics, Terrorism, Infrastructural.

INTRODUCTION

Due to the fact of being the fastest mode of travel, the aviation industry is being used as a preferred mode of travel and thus creating a large source of revenue for the economy. After the pandemic Asia is one of the regions where air travel is being used by many residents for the first time to travel abroad, and thus the aviation industry has more upcoming opportunities to generate more revenues and jobs for the region.
The aviation industry brings people together like families, friends and business colleagues. It also creates a platform to build the co- relationship among the airport travellers. It has made travel so short and flexible that travellers can reach their destination within short span of time and it has turned our big planet into world full of wonderful opportunities. Although there are few major challenges also in the aviation sectors such as safety, convenience, environmental and financial sustainability.

REVIEW OF LITERATURE

From, if there is one industry that tends to shows itself dragged onto the frontline of universal security and cyber issues, the Aviation industry is a very vulnerable industry as it gets affected easily if there are any terrorist attacks or geopolitical posturing. The aviation industry is easily targeted by cyber criminals and global terrorists due to its highly vulnerable nature.
Recent airport attacks in Brussels and Istanbul to the shooting down of MH17 over Ukraine, horrifying images are more powerful than reassuring statistics. Yadav (2017) result shows that new entrants, terrorist attacks and government interference in some matters are threats to the airline transport industry while high operational cost, fuel cost, taxes, inefficient and poor of manpower and low infrastructure and competition from other airlines are

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further issues faced by the aviation industries. Choudhuri et al. (2015) indicates that well to trace various issues and challenges faced by the Indian civil aviation industry. Indian aviation industries comprise of 41.01 million international and 121 million domestic and international passengers, so, the industry occupies a spot in the top ten in the global market in terms of size. Rameshan, (2018) also found that various issues and challenges facing by top leading aviation industries. The articles show found that some major reasons for the losses in the company as limitation on foreign direct investment by the government, high wage structure with unskilled employees, resistance from hedging in case of jet fuel, huge burden of insurance premium, mix a variety of aircraft, over capacity and competition leading to low fare and hence revenue emerged as difficulties for Air India Budding innovations in technology, the ways cyber criminals and global terrorists are using advanced methods of attack; this demands the aviation industry to make sure it maintains its safety level.

AVIATION INDUSTRY- ISSUES

The evolution of the international security landscape over the coming years will affect aviation in four ways as major issues,

1. Technology is rapidly democratizing the ability to inflict large-scale damage.
2. The merging of cyber and physicality creates new vulnerabilities like remote attacks can cause serious real-world disruptions.
3. Computer software in civilian aviation is potentially hackable if not procured with the safest and most secure methods.
4. Flight control systems, GPS-based navigation systems, fuel gauges and fuel consumption systems, maintenance computers, are the potential points of cyber vulnerability in aviation, and many more may be growing.
5. AI doing more than human being and machines are doing automated systems are becoming able to handle more situations, meaning that humans need to step in only when something is unusual and unexpected occurs. But recent days compared to computer humans have less opportunity to practice and hone their skills, they become inefficient capable of reacting quickly and appropriately in crisis conditions.
6. Increasingly investigations are realizing that the confirmation points in many systems are those at which humans interact with automated procedures.
7. Due to new technologies that spread the information and misinformation very quickly– it becomes an easy target for attackers to cause maximum issues.

OBJECTIVE OF THE STUDY

1. To Investigate the Issues & Challenges of Aviation Industry.
2. To find possible alternatives to mitigate the Issues & Challenges.
3. To explore the impact of Aviation sectors on Environment and focus the study on aviation industry's role on financial sustainability on economy.
4. To study the scope of innovation in aviation industry.

Problem Statement

1. Aviation industry plays a vital and major role in the creation of wealth and employment for the economy and society, yet there seems to be a need for a focused approach to finding possible ways to explore the foreseeable airport issues and challenges.
2. Despite the several repeated incidents and threats, there is a gap in finding appropriate solutions to meet the challenges faced by the aviation industry.

Aviation Industry- Challenges

Safety

Safety on critical notes is the only challenge that is not treated on the grounds of competition, as governments and various stakeholders in the aviation industry all make combined efforts to implement safety measures.

In 2013, there were some 36.4 million flights and 16 fatal accidents. If you were flying on a jet aircraft, your chances of being involved in a major accident were one in 2.4 million and including the three billion passengers that flew (the equivalent of about 40% of the world's population), there were 210 fatalities. There is no safer way to travel from one destination to another than by plane.

Passenger Experience

Passenger Experience is largely defined by the deep sense of responsibility and commitment that the aviation industry has towards safety. For passengers, safety is something that airlines must pay attention to all the time. And that is the way that it should be. Some of the challenges that aviation still faces are:

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1. Focusing on a system on which to allocate the crucial data among all those involved in the passenger's travel.
2. A smarter approach to security that is informed by what we know about the traveller.
3. While focusing on issues and challenges of the aviation industry, it is obvious to omit one issue, which in general is less discussed and talked about and these issues are talking about is Airline Catering Issues.

Consumer perceptions to inflight catering

Tabacchi and Marshall started a survey of consumer perceptions of in-flight services on domestic routes in the USA and found that 30% of the sample interviewed said that cuisine performed an important role in choosing which airline to fly with.

Issue of 'designer' menus

Menu and dish design must be as per the choice of the travellers of the airline, considering the many constraints like airline guidelines on available galley and oven space, weight limits, and budget.

Last minute requests, delays, aircraft changes from airlines and operational limitations

Food safety and security regulations aren't the only challenges; last-minute requests up to 15 minutes before aircraft departure, short turnaround times, aircraft changes, delays, and airport operational limitations also generate additional demand and pressure on airlines to deliver on time and according to customer specifications.

Different service strategies are being used on the same flight

To increase passenger service awareness and offer a wider price range on the same flight, to give high-level services to high-value customers to keep them satisfied and attract lower-rate passengers, by establishing tier-based complimentary on-board services. For example, Meal pre-selection, meal pre-order, and mixed Buy on Board / complimentary catering are ongoing strategies that require a different operational approach on critical catering activities, from service and galley planning to procurement and production planning, to preparation and consumption control.

Sustainability

There can be nothing guaranteed about the future of aviation if the industry is not sustainable. And it would be very much appreciated if attention is drawn to two dimensions of sustainability- environmental and financial.

Environment

Any business is expected to be sustainable. But it is especially challenging for airlines that burn fuel to propel their aircraft. Nonetheless, the industry (not just airlines but the whole value chain) has committed to some very ambitious goals. From 2020, it is expected to cap emissions, and growth will be carbon neutral. And by 2050, the aspiration is to cut aviation's net emissions back to half the levels that we emitted in 2005.Whilst it is not possible to make aviation sustainable (in its present form) in the very long term, much can be done and is being done to improve aviation's sustainability, including:

- Efficiently optimizing available capacity.
- Cooperate with each other to achieve a shared vision for more sustainable aviation.
- Making decisions based on optimizing the balance between social, economic and environmental imperatives.
- Helping the need for mobility in a manner where the greatest overall benefit will arise, meeting the needs of stakeholders.
- Taking every opportunity to minimize adverse impacts and resource use by creating and operating more efficient ATM systems, equipment and technology.
- Targeting efforts where they will produce the greatest improvement in our citizens' quality of life.
- Investing in adequate research, training, education and awareness.
- Being transparent and honest about both the good and bad aspects of air transport.
- Avoiding conflicting policies and regulations.

AIRCRAFT NOISE:

Noise has historically been the principal environmental issue for aviation. It remains high on the agenda of public concern.

NOISE DISTURBANCE:

Noise Disturbance is a difficult issue to evaluate as it is open to subjective reactions. Its impact is not a lasting one on the actual environment, but it can have significant adverse effects on people living close to an airport, including: interference with communication, sleep disturbance, annoyance responses, learning acquisition, performance effects and cardiovascular and psycho-physiological effects.

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NOISE LEVELS:

To reach an understanding of average noise levels, noise is usually modeled using computer programme that simulate aircraft "virtually" following an airports operating procedures, but with suitable variability such as track dispersion to make it more realistic. These models, such as the widely used **"International Noise Model"**, produce aircraft noise footprints for the number of and type of aircraft using an airport to calculate the extent of noise levels around the airport. This will assume average weather conditions. These noise "contours" can then be placed on a map to see which communities are subjected to different degrees of average noise levels. But it should be remembered that, as average conditions rarely occur, the noise contours are only indicative of typical noise impact.

AIRCRAFT NOISE MANAGEMENT:

All commercial aircraft must meet the International Civil Aviation Organization's (ICAO's) noise certification standards. These apply to aircraft designs and types when they are first approved for operational use, and they have been progressively tightened since the initial standard was adopted in 1971. The 'balanced approach' concept of aircraft noise management comprises four principal elements and requires careful assessment of all different options to mitigate noise, including:

- Reduction Of Aircraft Noise at Source.
- Land-Use Planning and Management Measures.
- Noise Abatement Operational Procedures; And Operating Restrictions.

The Balanced Approach has since been amalgamated into European Community legislation as Directive EC/2002/30).

Role of Innovation in Aviation Industry-

Technology advancement will always be a key driver in the improvement and solution present days issues and challenges.

Modern aircraft entering airline fleets today bring with them fuel efficiency gains of 20-30% over their predecessors. Billions of dollars are being spent on this each year.

The development of **sustainable biofuels** is one of the best innovations for the aviation industry. Over 1,500 commercial flights have been fueled by sustainable biofuels. The challenge is that biofuels are in short supply and expensive. It's a chicken-and-egg situation. The high cost is driven by the small quantities being demanded. And demand is low because of the high cost.

Another involvement of innovation will be in inculcating more efficient operation so that the minimization of consumption of fuel of the aircraft can be initiated.

Methodology:

This study is based upon secondary data and has been collected from textbooks, research papers and websites.

CONCLUSION & RECOMMENDATIONS:

- Too much compliance can be a bad thing, which means that the new rules and regulations are implemented to overcome new threats, and hence damaging awareness.
- Industries' approach should be offensive but not protective as it helps in preparing for upcoming threat.
- To counter the terrorist attacks the strategies should be based on situations rather than on experience.
- Often the response to one attack is to change security procedures in a way that merely shifts weakness. Adding to this, security checkpoint does not help if it creates queues before the check points which is helpless to an ISTANBUL-or BRUSSELS-type attack.
- This is not a new observation. A 2003 study by RAND on "Designing Airports for Security" found that reducing baggage drop waits from 15 minutes to one minute could halve casualties in a bomb attack. But much more attention is still typically paid to tightening security checks than reducing the crowding that can happen before them.
- Cooperation on security concerns, in the physical and cyber domain, makes everyone stronger.
- Aviation safety should be improved by better knowledge about passengers. Ensuring speedy and universal flagging to travel documents reported as lost or stolen could be an example of the process of addressing the challenges above.
- Governments to look even more broadly and develop an international protocol to manage the design, manufacture and deployment of weapons with anti-aircraft capability like it is for other categories of weapons—chemical weapons, land mines, nuclear warheads etc. Anti-aircraft weapons should be no different.

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- The use of sustainable biofuels must be enforced as they are good alternative power supplies such as solar power.
- The infrastructure of the airport must be in such a manner that it has the optimize the cycle that an aircraft must cover before it is cleared to land or must reduce speed before entering a busy air corridor. In both cases, the aircraft is burning more fuel than it should have to because the infrastructure cannot handle the demand. Estimates are that there is about 12% efficiency that could be gained if air traffic control systems worked at their optimum level. And every minute that is saved reduces fuel burn and emissions.
- To explore the possibilities for creating a program that may ensure that airlines can land in a continuous descent worldwide. Traditionally, aircraft have been guided to land in a series of descending steps. There is nothing wrong with the procedure, but it burns more fuel than the alternative.
- To make governments realize for a global mandatory carbon offset scheme. Airlines recognize that we will have to pay for at least some of our emissions until the other pillars of our strategy are fully mature. This important work is being done through ICAO.
- To apply aircraft noise management measures such as depicting preferred noise routes on a map that avoid residential areas as far as possible; avoiding over-flying sensitive sites such as hospitals and schools; optimum use of runways and routes as per the conditions; using continuous descent approaches and departure noise abatement techniques; avoiding unnecessary use of auxiliary power units by aircraft on-stand; towing aircraft instead of using jet engines to taxi; limiting night operations.

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