Prologue: ‘Airport’ – not a quite simple and straight forward noun

An airport is a multifaceted facility with different connotations for the entities associated with it directly or indirectly, for example:

- For an airport operator, it is a business venture;
- For airlines, it is the smooth running conveyor;
- For a financial analyst, it is a blue-chip investment;
- For those living in the vicinity, it is a pain for their peaceful existence;
- For real estate developers, a financial pump;
- For the surrounding communities, an economic engine rather than just an air transfer station;
- For the region, centers of economic development;
- For the nation, gateways to growth and finally,
- For passengers a dream and hopefully not a nightmare – basically an interface facility where they can switch over from ground to air and vice versa.

For all the above stated entities a safe and accident/incident free airport operation is paramount for their respective goals. The safety in aviation is a question of sensible, co-ordinated prioritization of production and protection goals, so that organisations in aviation can make money safely. Accidents – or their lack thereof – are reliable indicators of system safety as the financial and human costs associated with remedial action after experiencing an accident are inevitably high. Thus there are compelling economic and ethical reasons to fix the system before it breaks.

A Safety Management System (SMS) is a systematic approach to managing safety in any organisation but not necessarily only at an airport; however the scope of this paper is limited to analyze the common problems airports encounter in the implementation of Safety Management System (SMS) and then analyze existing solutions, if any, and propose solutions to manage and implement a living and effective SMS at an airport which is measurable in terms of results. There is an excellent guiding material in form of ICAO’s Doc 9859 to understand and design the implementation strategy for SMS but, here we discuss the ground reality and practical solutions to effect a radical change for the implementation of SMS at an airport from an Airport Operator’s perspective.

The establishment and functioning of an effective SMS at an airport shall have a buy-in of all the internal and external stakeholders. The aerodrome operator’s SMS shall have plug-ins or live connections to the SMS’ of these stakeholders. The system interface shall consider smaller organizations who may not have sufficient resources to employ a full-time Safety Manager or a department. In these organisations safety duties are often assigned as a collateral function to a mid-level manager, such as the Chief Pilot or Manager of Standards, Quality etc. Thus Safety management can unintentionally become a secondary priority, especially considering the substantial effort required. A small company may therefore possess a weak safety culture.
SMS at Indira Gandhi International Airport (New Delhi)

At Indira Gandhi International Airport (IGIA) we have identified there are essentially (basic and generic) twelve building blocks in tune with ICAO guidelines to effectively implement and manage a Safety Management System on a sustainable basis, which are:

1. **Management Commitment**: Top management’s commitment is the key to the success of a safety program. Running any program in an organisation requires allocation of resources in terms of monetary budget, manpower, tools and tackles and a strong message throughout the organisation. In all organizations this is a function of senior management; hence the senior management’s commitment makes or breaks the SMS implementation program.

2. **A Competent and Enthusiastic Safety Team**: The team driving the SMS implementation program shall feel pride in their job and treat safety as a religion rather than just a means of livelihood.

3. **Safety Data Generation**: In order to manage safety, the prime need is to acquire and collate safety data which transforms into measurable safety performance indicators against which targets can be set. Primarily this data is acquired through voluntary reporting by operational personnel. Thus it is essential for organisations to develop system of data inflow and rewarding strategies in the working environments where effective safety reporting by operational personnel takes place.

4. **Safety Assurance**: Safety assurance gives “confidence” to the management about implementation of the safety management system. It verifies the implementation status of the SMS and informs management for corrective actions, in case of any deviation or non-conformance.

5. **Measurement & Monitoring**: There should be a constant monitoring and measurement of safety performance indicators against the safety performance targets set for the identified critical areas. This updates management about the SMS progress and initiates further actions to meet the set targets.

6. **Investigation of Safety Occurrences**: The sole objective of such investigations is to identify safety deficiencies within the system rather than assigning blame. It is not as important to identify ‘who did it’ as it is to learn why it happened.

7. **Training**: A competent work force is less likely to make errors which lead to accidents. Thus a comprehensive training module be designed according to the operational requirements of each personnel’s job requirement. Safety component shall be inbuilt into these competency development training modules. Additionally all personnel in the organisation shall be appropriately trained of Safety Management and Safety Principles as per their roles and responsibilities.

8. **Communication**: Effective communications bridges the gap of thoughts and transforms them into actions. It promulgates management commitment down the line upto the actual works level. It keeps the
team well informed what the management wants from them. Moreover, it also gives them an opportunity to report a hazard or to suggest an improvement in the SMS.

9. **Hazard and Risk Management**: A robust hazard identification process helps to populate the Hazard and Risk register. Through this we mitigate all the risks associated with the identified hazards or bring them to an acceptable level of ALARP (As Low As Reasonably Practicable).

10. **Change Management**: Every change that is brought about in the operating environment is assessed for its safety implications and relevant steps are taken to contain the risks and mitigate the hazards associated with the change.

11. **Document Control**: This is one of the most important elements of live and vibrant SMS and is a baseline for management and third party audits. A well managed document control system shows the direction in which the SMS implementation program is heading to, and helps in benchmarking for setting future targets.

12. **Continual Improvement**: A stringent monitoring process coupled with review and improvement program makes the safety implementation program a sustainable success.

**SMS Implementation- Challenges and Solutions**

The multiple activities at an airport running concurrently to deliver on-time performance, cost effectiveness or value for money, customer satisfaction and cut throat competition consume major resources for any organisation operating there. These factors (sometimes) result in safety taking a back seat and pushed into a reactive mode. This is the time when accidents/incidents happen and if they don’t it is just a matter of chance. Normally severity of an accident triggers a reactive impulse in an organisation to implement safety and start related activities such as meetings, inspections, audits, campaigns etc. Historical data shows that these knee jerk reactions do, no good to the cause of safety and die down sooner than they started. This implies that there can be no alternate to a structured and concerted approach to manage safety or in other words implementing SMS.

Various issues that prove to be stumbling blocks or hurdles in the way of effective implementation of Safety Management System are analysed in the following table:

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<th>S. No.</th>
<th>Problems/issues</th>
<th>Proposed / Possible Solutions</th>
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<td>1.</td>
<td><strong>Lack of Focussed Approach</strong>: Every employee has a focussed approach towards the role assigned to his / her operational function at the airport. In the process of performing their duties the safety requirements take a backseat and are sometimes overlooked by employees.</td>
<td>Company HR shall allocate some numerical weightage to Safety in the annual appraisal of every employee, this will keep the employee motivated all the year round to work safely and contribute to the organisation’s safety goals.</td>
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Safety roles should be clearly mentioned in the job description of all the employees aligned with the organisation’s safety goals and performance indicators of the employees’ functional area.

Top management to take active interest in safety reviews and set realistic goals for the entire operations teams with accountabilities resting upon HODs

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<td>2.</td>
<td><strong>Resistance to change:</strong> The senior employees working at the airport have their own ways of operation and behaviour which worked when airports had low volumes of traffic and primitive technology. Today these habits may prove to be unsafe.</td>
<td>The senior personnel shall be given due importance and special training modules shall be developed for their understanding to bridge the gap between their times and current situation. Alternately if possible they can be assigned planning or supervising task rather operational tasks.</td>
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<td>Another danger is that they pass on these potentially unsafe habits to the younger generation.</td>
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<td>These employees show a resistance to change and catch up with the changing times.</td>
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<td>Use of Personal Protective Equipment, filling checklists and attending refresher trainings are few examples in this regard.</td>
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<td><strong>Already have some safety system in place:</strong> Since aviation is a high risk operation and if an accident occurs the stakes are very high, therefore, historically every airport already has some safety system in place which usually has a reactive approach and has a long way to come to proactive mode whereas the call of the day is predictive mode.</td>
<td>The state’s regulatory authority shall promote ICAO – SMS methodology to bring all airports in the state/region on a common platform.</td>
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<td>To change from their traditional system and adopt the new ‘Systemic’ approach finds resistance.</td>
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<td>4.</td>
<td><strong>Lack of resources:</strong> Often the organisations don’t allocate required resources to operate an effective and live SMS. Safety is considered a secondary function and the safety role is clubbed with other roles which make safety management a redundant activity.</td>
<td>A resource (Safety or SMS manager) shall be allocated separately supported with appropriate staff depending upon the size of operations to drive the SMS. The SMS shall have the backing and blessings of the top management.</td>
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<td>5</td>
<td><strong>Lack of Structured approach:</strong> Often organisations are performing most of the activities required for implementation of ICAO - SMS. It’s the lack of structured and systemic approach which makes them non compliant and reduces the effectiveness of safety program.</td>
<td>A ‘Gap Analysis’ shall be carried out against the ICAO requirements of the SMS and an implementation program with target dates shall be made and monitored by the regulator. The ICAO website has uploaded a sample SMS implementation program in the project management software (MS project) which can be referred to align the organisation’s safety</td>
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program with ICAO requirements.

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<th>6</th>
<th><strong>Shift of focus:</strong> Due to Economic down turn and fall in the revenue of the aviation industry in the last few years resource allocation both in terms of manpower and monitory budget is a major constraint in effective implementation of SMS.</th>
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| 7 | **Airport expansion projects:** Operating airports taking up expansion projects to catch up with the forecasted air traffic demands jeopardise the safety of operations by bringing a different breed of operating culture in form of Construction Companies with high risk appetite.  
The difference in the safety culture of two industries is huge and poses a threat to safety at airports thus sending the SMS program into a tail spin.  
Safety assessments of all the upcoming projects at the airport shall be carried out and the hazards identified shall be mitigated to ALARP.  
A comprehensive training program to sensitise the construction workers about the airport’s operating environment and the importance of safety shall be carried out to bridge the gap between the safety cultures of two industries.  
This shall be followed by refresher trainings.  
A strict vigil and safety monitoring shall be carried out by multiple entities viz. Construction Company’s Safety Team, Airport Operations Team and Airport’s Safety Team to ensure there is slippage in safety. |
| 8 | **Lack of Competency:** No specialised university courses in Aviation Safety management are provided in the region.  
The 5 day courses by ACI and ICAO on SMS are excellent training modules for aviation safety professionals with prior safety experience but for a novice they lack detailed understanding to bring them to operational level.  
The state regulatory authority shall start regular full time courses on SMS implementation in collaboration with regional educational institutions and give them accreditation.  
The organisations shall initiate an in-house competency development program where all job descriptions are assigned weighted modules of appropriate training; safety should be integrated in all competency training modules and not treated as an add-on. |
| 9 | **Safety Data:** Data on safety occurrences, incidents, indicators is the key to measure safety performance of an organisation.  
Although Data generation and collation is the biggest challenge in current scenario.  
Data generation is entirely possible given the technology available at hand and means of communication, but is heavily dependent upon ‘Reporting’  
Promotion of Just culture can bring a sea change in people’s approach towards occurrence reporting. |
| 10 | **Lack of Information sharing:** There is a lack of information sharing on safety data between the airports which results in waste of resources and everyone is busy in re-inventing the wheel. Whereas a collective effort to promote safety and learning from each other may show encouraging results.  
There should be an information sharing network of airports within the region to enhance learning from other’s mistakes or incidents and avoid making them yourselves.  
In Indian subcontinent two major airports of New Delhi and Hyderabad are operated by GMR Airports and they work in sync to implement SMS and share safety information. |
The private airport operators and Government Entity ‘Airports Authority of India’ have formed an informal interacting forum of Safety Managers called ‘ASNI’ (Airport Safety Network of India) and shares safety information on a regular basis.

**Some Practical and Out-Of-The-Box Solutions for Safety Managers:**

Safety is a very tricky business when it comes to bringing about a radical change in the people’s mindset. It is difficult to change their traditional ways of doing things however they may be unsafe, ineffective or possibly redundant in the given situations. The Safety Manager has to be very smart in sensing the mood of his colleagues and take very a diplomatic and measured approach in his course of duty. He shall not become a persona non grata among his colleagues and stakeholders but approach his mission in such a way that he earns people’s support and respect in the process of implementing safety. Thus as rightly said by someone, “Safety is about winning hearts” below are some practical suggestions for the safety managers.

- Lend a helping hand to other departments with your manpower and equipment in critical situations for example assisting Airside management during Monsoons when bird activity is high or terminal operations during winters when there are cancellations due to fog. This not only increases the popularity of your team but also gives them an in-depth knowledge of other functions which will help them in picking up safety issues of these operations and designing training programs.

- Before publishing any safety material viz. Posters, hand-outs or leaflets etc. Send draft to peers to get their inputs this gesture makes them feel important and as a bonus you get free advice and a convert.

- Send a strong message to all through your e-mails, interaction and actions that Safety Team has an advisory role. The implementation of safety lies with operational personnel and safety team supports and facilitates safety implementation in their projects. Don’t barge into their territory to catch them unawares, give them a chance to improve.

- Safety manager shall develop a strong networking relationship with his peers in other departments.

- Use pictures of colleagues with their permission in the safety campaign posters, thus making them a celebrity at the airport. This raises their involvement in safety activities and they feel to be a part of Safety Team.

- Make them ‘Safety Champions’ within the organisation by sending safety message emails to all company employees from email IDs of your peers or heads/colleagues of other departments. In the process they become a safety convert.
Starters shall not lose hope, usually the vastness of an airport’s operations makes SMS implementation look like a herculean task. It needs lots of effort and patience for an SMS implementation program to show sustainable results. To start with a gap analysis on ICAO – SMS requirements helps immensely in recognising the areas that needs focus and greater importance. Usage of a project management approach as mentioned earlier will help prioritise the activities which need precedence over the others. Project monitoring and periodic review will show great results and make a strong, vibrant and live SMS a reality at your airport.

**Epilogue:** ‘A dream doesn’t become a reality through magic; it takes sweat, determination, and hard work’.
– Collin Powell

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