

# *Independant Safety Review Team*

La Mission d'Expertise Externe

## *Findings and Recommendations Overview*

R. Curtis Graeber, Chair  
Erik Hollnagel, John Marshall, Jean Pariès,  
Nick Sabatini, Geoff Sartori, Roger Whitefield,  
David Woods

January 24, 2011

The Independent Safety Review Team (ISRT) was formed in December 2009 at the request of the CEO of Air France - KLM as part of three initiatives to enhance safety performance at Air France. The membership was selected from a broad spectrum of industry and academic expertise with a remit to study: how well Air France identifies and addresses safety issues; how well safety issues are perceived and acted upon by Air France personnel on a daily basis; and to identify strengths, weaknesses, and short and mid-term improvement opportunities for implementation within Air France.

The ISRT employed a methodology of interviews, Focus Groups, letters sent to a confidential website, and observations of operational situations, training, and safety management processes. To validate the hypotheses formed from these activities it developed a Safety Management Assessment Questionnaire (SMAQ) to obtain representative safety perceptions from 5800 operational employees as an empirical basis for comparing interview and Focus Group data. The ISRT analyzed the full set of data using its collective expertise from flight operations, safety and human factors science, and regulatory practices. It also compared procedures and policies used by other carriers about which it had in-depth knowledge, as well as industry standards and major established organizational safety principles.

Air France is a longstanding European airline with a distinguished history; it operates in accordance with all EASA standards and is an IOSA registered carrier (part of IATA's Safety Oversight Program). While the ISRT did not conduct a safety audit, it did compare Air France against the safety attributes of a modern, safe and efficient airline which its ex-airline members and ex-regulator collectively described: SMS Implementation, a Proactive Approach to Safety, Management and Governance Structure, Safety Culture, Training and Human Factors, Flight Data Monitoring, and Organizational Resilience and Reliability.

As is usual in this type of review, the ISRT found areas and activities in Air France that were excellent in comparison to other carriers, some that were well within the norm, and others where Air France was at variance to the norm and which needed improvement.

The ISRT believes that if Air France embraces the 35 recommendations in this report it will have made a positive step to address the differences. For this summary the findings have been grouped into three main areas: Organizational Structure, Culture /Behavior, and Individual Responsibility.

## **ORGANIZATIONAL STRUCTURE**

Air France's safety governance structure is overly complex, leading to an overlap and blurring of the lines of responsibility, roles and the activities of company's safety organizations. There is a lack of clarity in the minds of many frontline personnel as to which managers are responsible for which aspect of safety. Most carriers have one executive responsible for all safety programs within the company, including worker safety, reporting to the Accountable Manager. At Air France the Corporate VP Safety does report to the Accountable Manager, but the other safety managers have a reporting line to their departmental head and no direct reporting relationship to the Corporate VP.

Air France also has a structure in which operations post holders report to a Directeur Général Adjoint Opération (DGDO) - the Accountable Manager - for regulated matters, and to the CEO for other matters. Although this structure meets the requirements of the DGAC and EASA and the statutory delegation of power to the four operations post-holders is clear, (as is the manner in which they report to the Accountable Manager and the issues on which they report) most other carriers' post-holders report directly to the Accountable Manager for all issues under their responsibility. This is a simpler structure which makes the lines of responsibility for safety clear to the organization's workforce.

Air France needs to undertake a review of its safety governance arrangements starting at the top. It should consider a simpler structure with clear responsibilities and reporting arrangements and with the Corporate Safety department at the center responsible for policy and coordination. This structure should have an independent Board Safety Subcommittee providing oversight of the whole system. Air France should also clarify the roles, hierarchy and responsibilities of Corporate Safety, Group Safety, and all Operational Divisions' safety organizations (e.g., Flight Operations Prevention and Safety, the Flight Analysis Department, Ground Operations, etc.), and ensure that each division's safety department has a reporting line to Corporate Safety.

The ISRT believes that in general there is an absence of the strong safety leadership at all levels of management needed to guide proper consideration to safety in daily actions and decision making. When interviewed and asked about flight safety, Air France senior executives clearly state their commitment to safety and present safety as the airline's highest and undisputable priority. However, this message does not appear to have penetrated the workforce. "Safety first" is not commonly heard. This may lead some employees to believe that safety considerations are secondary to commercial considerations. The CEO and senior management need to drive safety from the top by providing more visible and

clear leadership in terms of the strategic safety vision, policy development, implementation and most importantly personal and visible delivery.

The ISRT found that Air France has pockets of excellence in risk management, comparable to other carriers, using formal processes to identify risks and apply appropriate mitigation strategies. However, the data flow and feedback loops in the current safety management system are not obvious and indicate an overly complex process.

Air France is currently defining its SMS according to industry standard and implementing most of the industry's standard safety management tools. An improved, more structured, risk assessment process has been progressively implemented enabling incidents to be examined for their potential to cause a more serious event, and major changes to be assessed for their safety implications. The ISRT strongly supports Air France's effort to develop these more predictive methods of risk identification. However, these predictive processes are not yet mature, fully implemented nor consistently executed and applied in a systematic manner across the operational sector. Through attendance at various safety meetings as well as interviews with key personnel, the ISRT also confirmed that, outside the safety expert community, the safety culture at various levels of the Corporate and Flight Operations department is still primarily event driven and reactive (it strives to prevent similar events from occurring again through eradication of their causes) rather than proactive and predictive (trying to understand the event as a symptom of a poor system safety design and to anticipate safety risks).

Our survey revealed that the majority of front line employees trust the confidentiality of the open reporting systems and report safety-related events when they occur. Given the fundamental importance of such trust for any safety management system, this is encouraging. In relation to other forms of hazard identification, Air France has had a well-established Flight Data Monitoring (FDM) analysis section since 1974. Unfortunately FDM is seen by some pilots as a "policeman" and not as a proactive tool to improve procedures and safety. Therefore, it has less than the desired impact on safety management. Over the years the FDM program has been an industry leader in development and innovation; however, the original protocol that governs the use of the data requires urgent updating to ensure that the safety lessons can be applied as judiciously as possible. This will align Air France with other major carriers.

Air France has a formal process for change management (Concerto Majeur), but there is evidence that it is not being systematically applied. There is also evidence that the final step of a mature SMS -"Review and Monitoring"- is often absent. The outcome of poorly monitoring the effects of change can increase the risk of unintended consequences. The introduction of a mandatory safety risk analysis currently being developed for any new equipment or operational process change is a positive development.

## **CULTURE AND BEHAVIOR**

The next group of findings and recommendations is about aircrew culture and behavior. The lack of adherence to Air France regulations and procedures by a small minority of pilots, reported to the ISRT is of serious concern and reflects on flight deck discipline in general. The General Operations Manual allows Captains to deviate from Air France procedures, if

necessary, for the safety of the aircraft and passengers. Similar authority is universally accepted internationally and is phrased "if a greater emergency exists". Unfortunately there is a small percentage of Captains who abuse this general guidance and routinely ignore some rules.

It should also be noted, based on responses to the SMAQ, that employees believe that AF staff (not only pilots) sometimes take procedural short-cuts or use expert workarounds. While such actions may be necessary to adapt to operational variability, the ISRT believes the issue needs to be better understood and managed.

Other departments, mainly Maintenance and Cabin Crew expressed a difficulty relating to pilots (captains) who treated them in an autocratic and arrogant manner. Once again this may be a small percentage of pilots, but the effect on morale, discipline and Crew Resource Management (CRM) is entirely out of proportion to the number of offenders. Air France needs to address this and other cross departmental frictions swiftly.

We were repeatedly told by pilots and others that line managers are not empowered to hold pilots accountable for improper actions. Hence, the ISRT believes that Flight Operations must assure that these managers have all necessary tools at their disposal to effectively carry out their pilot management responsibilities. This refers not only to support and empowerment from senior management, but also to the fundamentals of selecting the right/best person for the role and providing effective training in managerial skills.

A side-effect of the compliance problems at Air France is the tendency to "fix" such problems by adding to the procedure rather than disciplining the individual.

The ISRT believes that this has contributed to the complexity of AF procedures being substantially higher than among its counterparts. Air France's procedures need to be simplified with clarity of purpose including the use of Original Equipment Manufacturer manuals and procedures as the company standard.

A number of selection issues were raised during our review in relation to roles of flight instructors and entry-level pilots. The ISRT believes that the selection processes for flight instructors and evaluators must become more substantiated, open, and transparent. A review of initial pilot selection and training programs may provide an opportunity to develop a more team oriented, less elitist behaving pilot workforce.

The quality of training received by flight crews affects their ability to carry out their line duties satisfactorily. CRM training is a key element of that training. We were told by both cabin crew and pilot Focus Groups that classroom CRM training was ineffective, too conceptual, and too routine. While the ISRT believes that CRM has lost its effectiveness in Air France, it may be that it has not evolved as much as other airlines programs have. Regardless, CRM training should be updated with a focus on establishing an integrated link with simulator training and integrating the knowledge gained from SMS and LOSA data.

### **INDIVIDUAL RESPONSIBILITY**

The third group of findings relates to individual responsibility. The ISRT believes that the culture at Air France does not reflect the level of trust and cooperation that senior management would like to see and that is typically seen at best performing carriers. This lack of trust generates unnecessary and time-consuming crosschecking, repeated questioning of others' work product, and a refusal to accept that someone from another function has the ability, training and professional commitment to perform his or her duties accurately and completely. The culture also includes low trust of managers by employees.

A broadly recognized and key feature of high reliability organizations is an appropriate level of mutual trust along the hierarchical chain. Therefore, in order to enhance safety as well as efficiency Air France should be striving to establish an inclusive culture where all departments work together as a team. To do this trust needs to be re-established across the various departments with an emphasis on cross-departmental teamwork. It is vital that, as individuals, each member of Air France feels a part of the Air France family and strives to do all they can to improve the safety and well being of passengers and staff alike. Team building exercises, particularly cross-department, will reinforce this behavior, as will strong and visible safety leadership from the Chief Executive down through all levels of management.

Having an inclusive culture is also dependent on union support for safety issues. The high number of pilot unions makes it difficult to reach consensus. Unfortunately an unhealthy relationship currently exists between management and workforce unions partly as a result of Air France's "social peace at any cost" approach to the unions. The ISRT believes there is a potential risk to safety because union tension, particularly among pilots, has invaded the operational domain. Air France does not have the right place and way to discuss safety with the unions. So in practice, safety is officially outside, but implicitly inside, the scope of labor- management discussions. Operational policies, rules and procedures should not be the subject of any form of union negotiation, but well researched union technical data and input should be welcomed as at other carriers in a collective debate. Beyond recent efforts such as the formation of the CMP, this situation has to be addressed if Air France is to improve the working relationship with the unions and ensure that the unions are "partners in safety" with management.

The working relationship with outside parties including the DGAC was the subject of ISRT attention as part of the review. Some issues were identified with respect to the experience level of the DGAC inspectors and the resulting problems that arise during oversight activities. The ISRT is aware that air carriers who embrace a "working together" relationship with the regulator experience higher levels of safety performance. This requires that there be an open sharing of safety data and partnering with the regulator to capitalize on its experience in identifying risks and implementing corrective actions. The clear direction that resulted from our examination of the relationship is that a more "working together " attitude from both parties would be of great benefit to both organizations.

## **SUMMARY AND CONCLUDING REMARKS**

The formation of the Independent Safety Review Team in a public manner and providing it a broad charter to examine flight safety at Air France was a courageous act. It represents an example of safety leadership rarely seen in today's international aviation industry. Each member of the ISRT feels honored to have been asked to assist Air France in this important endeavor and sincerely hopes that our report will be taken in the way it is intended - an honest, forthright examination of the fundamental underpinnings of flight safety and a sincere attempt to offer helpful and valuable insights and recommendations that will enable Air France to become a world leader in aviation safety. The reader should bear in mind that we did not examine major portions of Air France, nor did we conduct a safety audit. Because of these intentional omissions and the nature of our effort it would be irresponsible to attempt to link this report and its findings with any accident past or future.

As both employees and managers repeatedly told us, this report offers Air France a unique and rare opportunity to make major safety improvements in accordance with its historic position in international aviation. There are a number of ways by which Air France can improve how it manages the safety of its operations, both at the formal (system design) and practical (real work) levels. Our recommendations are designed to help, and we believe that they should be implemented as soon as possible. We are particularly pleased that Air France has already begun to implement four of them including establishing a Board Safety Subcommittee and conducting a LOSA to better understand flight deck operations. We strongly believe that the ISRT report should be directed to the Board Safety Subcommittee and hope that they will accept the responsibility for overseeing the implementation of the recommendations going forward.

We are particularly pleased that the pilot unions have joined together through the leadership of the CMP to support carrying out a LOSA. It is a credit to them and Flight Operations management that Air France will be the first major airline in Europe to conduct a LOSA using an external independent organization. We hope that such a dramatic demonstration of trust by pilots will set the example for re-establishing trust across the entire workforce.

While some recommendations will be relatively easy to implement, others will require considerable effort by both the management and workforce and will take almost a decade to become totally effective. This is not a recipe for short-term remedies. Strong and effective leadership will be required for success. Especially challenging will be the need to redefine the relationship between management and the unions, particularly the pilot unions, in terms of how they can work cooperatively to improve safety. Teamwork and mutual trust must be the foundation of safety to ensure lasting change.

With our focus on championing lasting change, we believe that Air France needs to review its traditional project-based approach to change and consider establishing change agent teams beyond the typical two-year lifespan. The already established Comité Mixte de Propositions (CMP) and Programme Trajectoire are two such efforts that could provide significant benefit to safety enhancement in the future. We also strongly believe that recurrent administrations of the SMAQ over the next several years will enable Air France senior management to monitor the impact of our recommendations as well as other actions on improving the safety culture of Air France. The results should also enable management to better understand what safety themes (see star diagrams) need more attention in which operational areas. After spending a year interacting with Air France's managers and workforce, we believe that major safety improvements are possible, but if, and only if, it is driven from the top. We collectively wish them well and thank them for the open and cooperative attitude that they have shown us throughout.

### **List of recommendations**

**1** Air France should establish a Sub-Committee of the Board of Directors that deals exclusively with safety. In order to provide: Independent oversight, visible safety leadership, assistance to the Board in fulfilling its corporate governance responsibilities in regard to operational safety and risk matters, and compliance with legal and regulatory obligations relating to safety and risk.

It should be comprised of at least three members, including the CEO and at least two Non- Executive Directors, and chaired by an independent Non-Executive Director. The Sub- Committee will confirm that management has established and operates a risk management system, which identifies, assesses, monitors and manages operational safety and risks.

**2** Air France should establish leading and lagging performance indicators of the Safety System based upon analysis of the rolled up safety data and the risks they pose in order to make informed decisions about the indicators to be tracked.

**3** Establish safety oversight of Wholly Owned Subsidiary airlines, in particular, those carrying the Air France brand. Oversight should specifically include those airlines' safety performance indicators.

**4** The COMEX should reinforce and develop the effectiveness of its company-wide communication plan that explains and reinforces its commitment to safety and its expectations for employees and managers.

**5** The safety policy which communicates AF's safety objectives should be produced at the CEO level.

**6** In order to simplify the company's safety governance structure and reflect safety governance structure best practice, Air France should examine alternate structures that would:

**6a** Modify the company's governance structure to have the Nominated Postholders reporting to the Accountable Manager;

**6b** Establish a formal hierarchy of safety meetings within each Division from the local level through to Board Safety Subcommittee;

**6c** Ensure that the linkages between the meetings are, at least, the Corporate Safety department representative and a common database.

**7** Air France should communicate and explain the roles, hierarchy and responsibilities of Corporate Safety, Group Safety, and all Operational Divisions' safety organizations (e.g. Flight Operations Prevention and Safety, the Flight Analysis Department, Ground Operations, etc.), and ensure that each division's safety department has a reporting line to Corporate Safety.

**8** Managers' roles, responsibilities, and authority regarding safety should be clearly described in writing, as relevant, in their position descriptions, and their performance should be evaluated on at least an annual basis.

**9** Air France should ensure that the safety data gathering and analysis methods used by all Safety Departments are consistent and that they are communicated clearly to all the staff.

**10** Review and update the Flight Data Monitoring Protocol so that:

**10a** The process is streamlined to ensure that investigations are closed before the next meeting whenever possible;

**10b** The involved crew members are required to participate in the investigation if needed;

**10c** One well-trained and informed pilot represents all the unions per fleet;



**10d** Air France management has the ability to determine whether events are attributable to a single individual over time or multiple individuals

**11** Air France should continue to develop their proactive management of safety data, wherein attempts are made to understand the event as a symptom of system design and to anticipate risks before accidents occur, and also pursue their effort to achieve a predictive state, where risks are anticipated, weighted and mitigated before symptomatic events have occurred.

**12** Air France should ensure that change requirements intended as risk mitigations affecting frontline operators are monitored to confirm that the required behavioral change is achieved. **13** AF should reinforce Concerto Majeur implementation, and insure that formal operational cross-divisional safety risk analyses are conducted at the start and at relevant phases of all projects (not just those involving operational issues), that identified risks are mitigated satisfactorily before proceeding in accordance with SMS requirements, and that mitigations are monitored to ensure that they are having the intended effect.

**14** Air France should ensure that it has a suitable process to manage and support weak performers in operational areas to eliminate unacceptably low performance.

**15** Institutionalize LOSA as a reliable tool for monitoring routine flight operations. The outcome and follow-up actions should be overseen by the Board Safety Subcommittee. Consider extending LOSA-type observations to other operational areas and using all additional available information channels (e.g. incident reporting, instructors feedback, front line management feedback, etc.) to build realistic indicators of real work, daily operations which in turn can guide decisions about procedures, competences, teamwork, and work contexts.

**16** Fleet Managers must be and feel empowered to manage safety and standards and to take disciplinary action when necessary to hold their staff accountable.

**17** The process of the "no fly" list should be managed in a consistent way across the fleets. The list should be used to provide feedback and to address inappropriate behaviors, not to avoid them.

**18** Air France should implement a leadership development program for managers in Flight Operations.

- AF should establish a pool of high-potential aircrew for future management positions
- Members of the pool should be given broad-based management training and evaluated over a period of time (2-3 years). These individuals can become source for selecting future pilot managers.

**19** With the goal of assuring the highest quality candidate, the selection process for Flight Operations Management positions must be open and transparent.

**20** With the goal of assuring the highest quality candidate, the selection process for flight instructors must be open and transparent and promotion must be based upon performance.

**21** Initial pilot selection and training programs should be reviewed and, if necessary, changed to develop a more team oriented pilot workforce which behaves in a non-elite manner.

**22** Air France should continue its efforts to simplify policies and manuals across operational areas including the use of Original Equipment Manufacturers' manuals and procedures in English as the company standard.

**23** Air France should communicate, explain, and illustrate the areas and circumstances in which Captains may exercise discretion.

**24** Air France senior management must clarify and promulgate its position and policy on disciplinary action for non-compliance in order to strengthen procedural compliance and assure that safety is being managed effectively on a daily basis.

**25** Air France should improve the overall quality and standardization of its flight instruction by:

**25.a** Improving the instructor selection process

**25.b** Standardizing training delivery and content

**25.c** Conducting recurrent training in instructional techniques for instructors

**25.d** Monitoring of the flight instruction process, including thorough feedback

from trainees **25.e** Requiring inclusion of CRM principles in training delivery and evaluation

**25.f** Ensuring that lessons from incidents and identified risks are integrated in a realistic manner into the training program so that the risks are effectively mitigated as determined by Corporate Safety.

**26** Air France should review and update CRM training in order to establish a strong link between simulator training, CRM training and the SMS monitoring and LOSA outputs, and ultimately embed CRM as a cross-domain platform into all parts of the operations including training :

**26.a** Use a detailed questionnaire to all crews to assess and understand strengths and weaknesses of the CRM training;

**26.b** Reinforce references to CRM skills in the pilot ab initio selection and hiring criteria, in the pilots performance assessment, and in the flight instructor selection criteria

**26.c** Reinforce skills for observing CRM issues, as well as for CRM issues briefing and debriefing skills, in the Flight Instructors initial and recurrent training, and recurrent assessment;

**26.d** Collect Flight Instructors feedback about CRM skills evolution among the trainees and provide it to CRM program managers, flight operations managers, flight operations safety managers;

**26.e** Involve CRM facilitators in a systematic collection and synthesis of critiques and suggestions expressed during CRM training session to improve such training;

**26.f** Reinforce cross-domain cooperation (e.g., with maintenance) issues during CRM sessions discussions;

**26.g** Incorporate conclusions from recent AF incidents, main LOSA outcomes, and AF risk management priorities into CRM sessions;

**26.h** Involve CRM facilitators / Human Factors experts (not just pilots) in the design of operational processes and procedures changes.

**27** Ensure that the FAR project continues to address pre-flight processes that reduce pilot workload.

**28** Air France senior management should make clear to operational personnel, including cabin crew, how they expect them to behave when pressures for efficiency seem to conflict with the need to be thorough to maintain high safety standards.

**29** Air France should establish an effective Cabin Crew Safety Department to deal with cabin crew safety issues and have the same reporting structure as the similar bodies in other Divisions (a hard reporting line to Division manager and a dotted reporting line to Corporate Safety).

**30** Senior leadership and all levels of management should demonstrate teamwork and emphasize the importance of teamwork, celebrating positive examples.

**31** Air France should launch a highly visible, cross departmental team building initiative to break down the "walls" between organizations (e.g., BA's "Putting People First"). This initiative should provide opportunities for cross functional teams to work together on significant projects.

**32** Operational policies, rules and procedures should not be the subject of any form of union negotiation, but well researched union technical data and input should be welcomed as at other carriers in a collective debate. Flight safety should be explicitly incorporated at the relevant level within the perimeter of discussions between management and pilot unions.

- An official "locus" should be established for discussions about operational safety between management and unions, at different levels in the organization: technical committees at department level, and a more strategic committee at corporate level.
- There should be two unions' representatives at the corporate level nominated globally by the unions, not one per union.
- Union representatives should have knowledge and experience in aviation safety. Air France should assist them in gaining expertise (e.g. providing training) if required.

**33** In order to define and communicate the boundaries between acceptable and unacceptable behavior and protect those who report errors and safety gaps, Air France management together with labor unions should develop and implement an approach, within all aspects of operations, that reflects current international aviation industry best practice using ICAO guidance on Just Culture as a model.

**34** All Air France Unions should establish a common forum to routinely discuss inter-domain cooperation for flight safety.

**35** Air France should develop a more cooperative "working together" relationship with the DGAC. For example, Air France should promote, encourage, and embrace participation of DGAC inspectors in their data sharing sessions, e.g., RX2.