Mauro Calvano

QUALITY IS SAFETY

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In the contemporary european civil aviation Quality is Safety by definition, as a matter of fact JAR-OPS 1 and 3 state that an operator must establish a Quality System as the tool for ensuring safe operational practices with airworthy aircraft.
Established that Quality IS the tool for ensuring Safety, this paper analyse how JARs use this tool and what can be done to further enhance the link between Quality and Safety Systems.
Special attention will be given to how a better implementation of the ISO 9000 standards and the introduction of a Safety Management System (SMS) can improve the relation between Quality and Safety.

As previously mentioned, JAR-OPS 1.035 requires the implementation of a Quality System that "should enable the operator to monitor compliance with JAR-OPS 1, the Operations Manual, the Operator's Maintenance Management Exposition, and any other standards specified by that operator, or the Authority, to ensure safe operations and airworthy aircraft."
The person in charge of monitoring the operator's compliance with the specified requirements is the Quality Manager.
Even if JAR-OPS 1 specifies that:

- the functions of the Quality Manager "may be carried out by more than one person by means of different, but complementary, Quality Assurance Programmes."
- the verifications of the standards required "are being carried out under the supervision of the relevant Nominated Postholder."

it is well known that in industries where Quality is well established, all managers are responsible for Quality.
JAR-OPS 1 enshrines the position of Quality Manager, where industrial experience has demonstrated that there is a real danger that such a manager is perceived as the one who takes care of all Quality problems.

Quality and Safety share a common requirement: both have to be everyone's concern. This is the basis for the efficient implementation of the Quality and Safety System. Any operator's policy should always underline how important is to create and share a common Quality and Safety culture.

ISO 9000 does not even contemplate the Quality Manager position, because the true goal is Quality throughout the business.
ISO 9000:2000 part 4.1 asks for the implementation of a "Quality Management System" that has to be applied throughout the organisation. The top management is requested to appoint a Management Representative in charge of establishing, implementing and maintaing the process needed for the quality management system.
The ISO 9000 approach is aimed to deeply ingrain the Quality System within the organisation, much more than JAR-OPS does.

If we agree on the fact that a Quality System designed to assure Quality and Safety is already the basis of safety management, it becomes clear that any effort should be done to spread the notion that Quality and Safety responsabilties lie on everyone and not on a single person. This means that when implementing a good Quality System, the top management's priority is to establish a strong "Quality Culture", with a clear commitment of the management and with the workforce seeking Quality in everything, which always translates into improved Safety. This is the fundamental link between Quality and Safety, if we look for ever improving Safety, we have to look for everyone's commitment in Quality, that is the establishment of a healthy "Quality Culture" within the organisation.

Of course it is important to directly involve the top management in these responsibilities, for this reason JARs introduce the figure of the Accountable Manager, who has a specific responsibility for the Quality System.
The Accountable Manager position is usually covered by the company's CEO (or by the person "who has corporate authority for ensuring that all operations and maintenance activities can be financed and carried out to the standard required by the Authority"). This ensures the economical covering of Quality matters. Unfortunately JAR-OPS 1 divides the

Quality Assurance section (subpart B) from the management and administrative section (subpart C). This separation can represent a problem for quality implementation in an airline.

Another aspect of an airline Quality Assurance programme that has a direct impact on Safety, is sub-contract.

With the exemption of the big airlines, most operators find necessary to sub-contract certain activities to external agencies. Among the services usually sub-contracted we have: Ground Handling, Training, Maintenance, Flight Planning, Performance calculation and Manual preparation. Because of the important impact on Safety, JAR-OPS 1 requires the sub-contractors to be included in the operator's Quality Assurance Programme. Another requirement is that the operator should ensure that the sub-contractor has the necessary authorisation/approval to undertake the task.

These are very minimal requirements and no mention is present about the criteria for selecting the sub-contractors.

ISO 9000:2000 goes in this direction requiring: the organisation to evaluate and select suppliers on the base of their ability to supply the service. Criteria for selection, evaluation and re-evaluation should be established. Records of the results of evaluations shall be maintained.

In the operational life the evaluation and selection process of a sub-contractor can be very difficult: Handling companies often operate in a monopolistic regime or the required resources are at the opposite part of the world in a brand new destination. It is normal practice in other industries to have Quality departments exchanging quality information to each other on the effectiveness of subcontractors. This is a form of co-operation that all airlines' Quality departments should look for.

The other important aspect suggested by ISO 9000 is the keeping of accurate records. As evidence accumulates, the evaluation function of the Quality System should gradually improve the quality of sub-contracted services and, consequently, the safety of the sub-contracted operations.

Another important aspect on the relation between Quality and Safety is how the operator's Quality Assurance Programme check the effectiveness of the system, that is through Audits.

JAR-OPS defines an audit as: "a systematic, and independent comparison of the way in which an operation is being conducted against the way in which the published operational procedures say it should be conducted."
If any non-conformity arises from the audit, the Quality Assurance Programme should then ensure that corrective actions are taken in response of the finding.
Corrective actions are the removal of the root cause of the problem, and on this point JAR-OPS uses the statement: "the operator should establish… the origin of the finding".
Even if corrective actions are adequate for business purposes, they could not be sufficient in Safety matters.
ISO 9000:2000 provides again a more complete and adequate improvement structure, introducing the concept of "Preventive Action". ISO 9000 requires the organisation to eliminate the causes of POTENTIAL nonconformities, in order to prevent their occurrence.
When talking about Safety, preventive actions are clearly aimed to anticipate and prevent incident, using all the information available. This correspond to the description of one of the main duty of a Flight Safety Officer, or a Safety Manager.
The Quality Manager is not, however, a substitute Flight Safety Officer. The FSO should maintain his position but now backed by the company's Quality Assurance Programme.
The integration between Safety and Quality in an airline should see the Safety Manager working on preventing actions in order to reduce the causes of potential incident, the Quality Manager in parallel to the activities of the Safety Manager will conduct ongoing audits to ensure that all the company procedures are being followed and that there is no possibility of the erosion of safety by non compliance. Where a non-compliance is detected, this will immediately be corrected.

The logic follow-on should be the introduction of a Safety Management System (SMS) to provide the operator with an integrated process for an improved system of safety management. Unfortunately a Safety Management System is not required by JAR.

JAR-OPS 1.037 asks for an Accident Prevention and Flight Safety Programme, particularly:
"An operator shall establish an accident prevention and flight safety programme, which may be integrated with the Quality System, including:

(1) Programmes to achieve and maintain risk awareness by all persons involved in operations; and
(2) Evaluation of relevant information relating to accidents and incidents and the promulgation of related information."

Even if JAR-OPS do not clearly define the relationship between Quality and Flight Safety and there is no provision for a Safety Management System, a well designed Quality System already is an SMS with only risk management procedures to be added for completeness.

We can conclude stating that Quality is Safety not thanks to more or less complete outline provided by the Authority, but Quality is Safety only when there is a positive attitude from the top management and consequently both quality and safety become everyone's concern.