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ENAC

ENTE NAZIONALE PER L'AVIAZIONE CIVILE

ITALIAN CIVIL AVIATION AUTHORITY

SAFETY DATA COLLECTION, ANALYSIS AND DISSEMINATION

eE-MOR

THE ELECTRONIC ENAC MANDATORY OCCURENCE REPORTING SYSTEM

EE-MOR

THE ENAC REPORTING SYSTEM

EE-MOR (*electronic ENAC Mandatory Occurrence Reporting*) is the system to collect, evaluate, process, protect, store and disseminate reported aviation occurrences, designed and implemented by ENAC in accordance with Directive 2003/42/CE of the European Parliament and Council, included in the national code through Legislative Decree of enforcement 213/2006.

This Directive establishes the criteria and standards for reporting, collection, recording, safeguard and diffusion of information concerning aviation occurrences, for the purpose of improving air safety.

The Directive refers to an aviation occurrence whenever an operational interruption, fault and/or other irregular circumstance happens, without resulting in an accident or any serious incident, these being already regulated under current law.

Thus, this is the first time that an innovative system is introduced in our Country and Europe, that integrates reporting and interrelated analysis pertaining to each and all events that could endanger flight safety, including accidents and serious incidents.

Particularly, the legislative Decree establishes a system of mandatory reporting of occurrences assigned to ENAC, and a system of voluntary reporting of information on observed deficiencies in aviation, other than those requiring mandatory reporting, which are perceived by reporters as an actual or potential hazard for aviation safety. The voluntary reporting system is assigned to the National Body for accident and serious incidents investigation (Agenzia Nazionale Sicurezza del Volo - ANSV).

The ENAC reporting system has been established for the sole purpose of prevention of aviation accidents and incidents; it is not aimed at determining guilt and attribute blame or liability, in light of a no penalty policy that is the actual turning point of an innovative approach to the safety topic, where cooperation between ENAC and ANSV is seen as a fundamental lever to attain significant results.

The EE-MOR System aims at being the tool for

a necessary cultural change that, following the *Just Culture* concept, will bring an ever-growing efficient sharing of information for the improvement of air safety. It involved the cooperation of national competent authorities and aviation industry to reduce the overall data reporting burden on industry, applying a new model of electronic air data collection, validation and dissemination of all occurrences reported by all aviation industry, consistent with common international taxonomic principles.

ENAC introduced the ɛE-MOR System at the end of 2007 within the ESSI (European Safety Strategy Initiative), a project launched by the European Agency for Aviation Safety (EASA), supported by some national authorities as well as by major representatives of European stakeholders, with the purpose of promoting improvement of air traffic safety in Europe and decrease the number of fatal accidents.

The Italian model consists of four general stages: data collection, merging, validation and dissemination.

It could become a starting point for the conceptualization of an electronic safety data collection system in Europe. The final system is designed to produce statistics for policy decision-making purposes.

The pilot project, conducted by ENAC Safety Regulation Directorate, proceeded along the following phases:

1. Development of System design specification and associated software tools
   - 1.1 System Architecture
   - 1.2 Occurrence reporting protocol
2. ENAC internal process and procedures
   - 2.1 Establishment of work team
   - 2.2 Preparation and issuance of ENAC Advisory Circular GEN 01
   - 2.3 Preparation and issuance of Operating Procedure ASV-12
   - 2.4 Training initiatives
3. Information and promotion for national aviation industry

1. DEVELOPMENT OF SYSTEM DESIGN SPECIFICATION AND ASSOCIATED SOFTWARE TOOLS

1.1 SYSTEM ARCHITECTURE

Founded on the criterion of maximum accessibility for users, the system is composed by the following subsystems:

Safety Data System

A software tool developed in web configuration by a team that includes the Italian Flight Safety Committee, an Italian association created in 1999 that comprises representatives of all sectors of air transport including ENAC and the Kite Solution Company, with the purpose of analyzing and developing the SDS application (Safety Data System). The SDS is a tool designed by IFSC for all aviation operators, related to collection, analysis and automatic reporting to the Authority of mandatory data on aviation accidents, serious incidents and incidents.
The participation of ENAC Safety Regulation Directorate to the development of IFSC SDS project contribute to the following goals:

1. a comprehensive implementation of ADREP taxonomy (Accident/Incident Data Reporting of)
2. a compatibility of the tool with the European system ECCAIRS (European Co-ordination Centre for Aviation Incident Reporting System)
3. a national standardisation of safety data reports focused on risk management.

The Safety Data System includes functionality for direct digital transmission of occurrence reports to the ENAC. All users can nevertheless utilize the system online by accessing ENAC website www.enac.gov.it.

SDS2ECCAIRS

ENAC developed a specific application, SDS2ECCAIRS, to automatically merge into one report all information that refers to the same occurrence, although sent by different operators; it forwards an e-mail notice to all concerned staff and assigns the incident data to the ENAC Directorate in charge of validating the occurrence report.
The tool changes the SDS data into the European format (ECCAIRS).

ECCAIRS

This is the system data base used for the validation of the occurrences reports, as well as to generate statistics and assess risk matrix.

ENAC will use it to diffuse information concerning safety, compliant with recently introduced European regulations.

1.2 OCCURRENCE REPORTING PROTOCOL

It aims at maximum simplicity and accessibility by offering the following options:

1) Online transmission to the ENAC

2) E-mail transmission of a file created with SDS application (accessible only to users who own this application)

3) E-mail transmission of a specific file available upon request, by following the procedure shown on the ENAC website www.enac.gov.it. This unrestricted digital model, easy to use even with basic computer setting, is configured to allow also general users to send data, and it allows transferring all information directly into the ENAC database.

   This digital model, compared to the traditional reporting systems, is unique in the European and international scenery.

4) Mode "WEBDAS" (made by the European Commission and provided together with the application "ECCAIRS") that involved the creation of an ENAC website, shown in Figure 1. From that page is possible to access, upon authentication (Fig. 1), on WEBDAS page (Fig. 2) where one can:

- enter all necessary data relating to the occurence;
- start searches using predefined items such as: type of event, geographic location, time period and type of aircraft (of course, each operator can only see its own occurences which, on the contrary, will be visible by all ENAC officials);
- save these occurrences in files of proprietary format that will be transmitted electronically (e-mail, etc). This function is strategic as well as allows local storage of all of the broadcast, allows moving also a significant part of the process of data acquisition in temporal phases in excess of 72 hours, as well as the evaluation of the event, inside the company/operator, easing, actually, the workload of ENAC.

On top of that, thanks to this architecture, it was planned, in the near future, the publishing on the Web of the aggregate data subdivided by category and type of event, that will take place every six months and / or on annual basis.

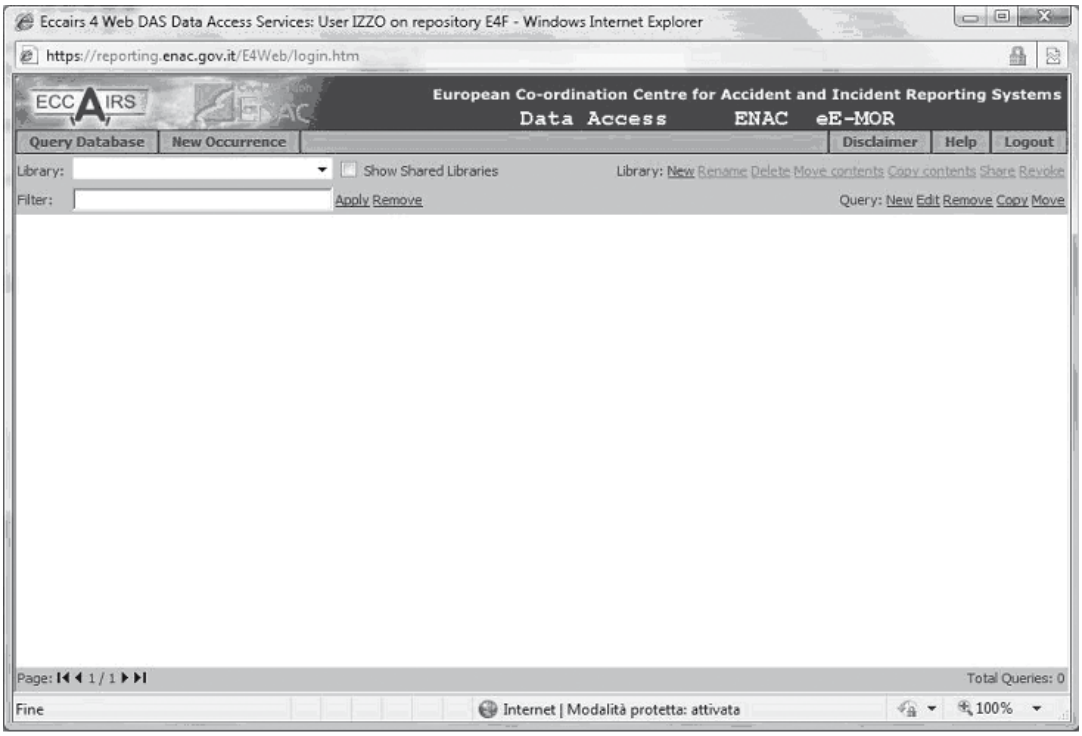
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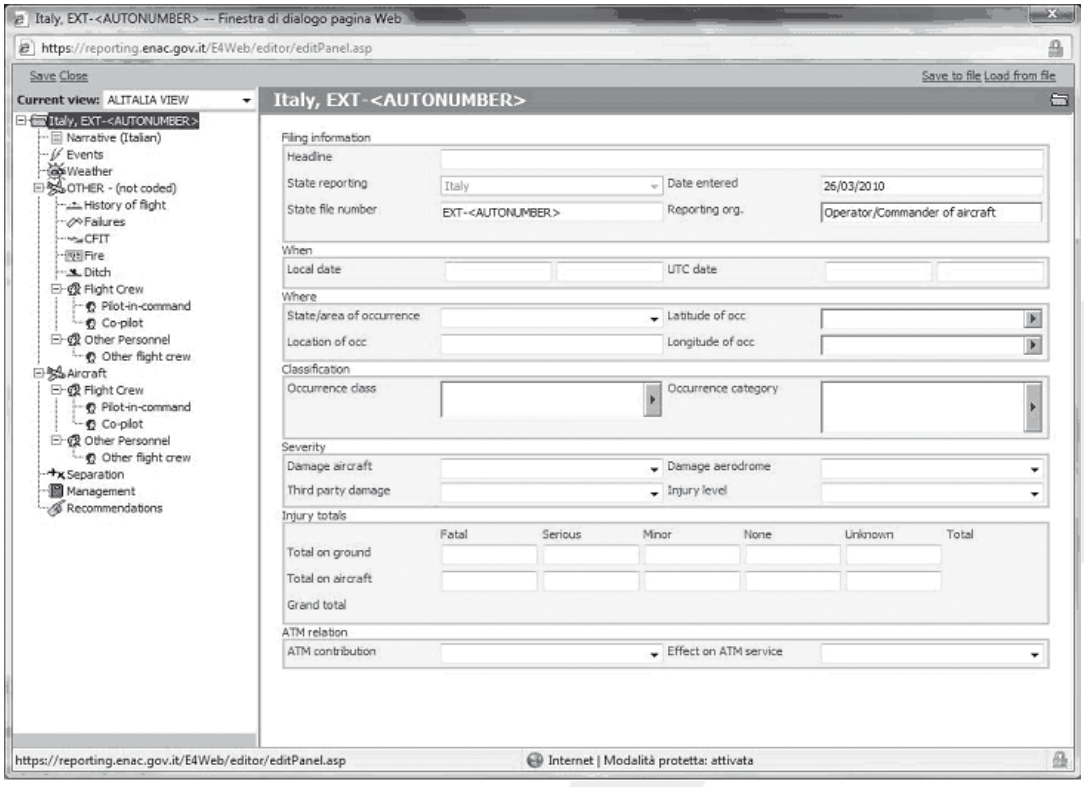
Fig. 1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Weather
OTHER - (not coded)
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Failures
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Fire
Ditch
Flight Crew
Pilot-in-command
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Other flight crew
Separation
Management
Recommendations
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Operator/Commander of aircraft
When
Local date
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Where
State/area of occurrence
Latitude of occ
Location of occ
Longitude of occ
Classification
Occurrence class
Occurrence category
Severity
Damage aircraft
Damage aerodrome
Third party damage
Injury level
Injury totals
Fatal
Serious
Minor
None
Unknown
Total
Total on ground
Total on aircraft
Grand total
ATM relation
ATM contribution
Effect on ATM service
https://reporting.enac.gov.it/E4Web/editor/editPanel.asp
Internet | Modalità protetta: attivata

Fig. 2

2. ENAC INTERNAL PROCESS AND PROCEDURES

The stages of ENAC internal process for the eE-MOR system implementation are the following:

Data collection - ENAC is concentrate on collecting safety data records all within current legislative restrictions and limitations. In particular to ensure that the information is collected within 72 hours and in taxonomy, ENAC makes available several electronic tools.

Merging - The system assesses particular elements contained in all reports coming by different operators about the same occurrence (Air Operator, Aerodrome Operator ATM Servic..) and automatically merges and records the information into one report.

Validation - Information recorded are maintained by ENAC. As the data are recorded, validation occurs in two phases. The first phase involving checking for errors inherent in the data such as missing data or inconsistent information. The second phase is focused on validating certain elements against analyst/focal point assessment or other sources of information.

Dissemination - Once validated, the information are recorded in the Central ENAC Data base and forwarded to the interested people, in the way and within the confines and limitations of existing legislation and regulations.
The processing of incoming data being collected and filed has been fully computerized.
More than 4.000 reports have been collected since the beginning of 2008.
These numbers are the result of the new reporting obligations for all operators in line with the new regulations (Legislative Decree 213/2006) summed to reports compliant with the existing regulations.
The extensive automation of the internal process is meant to allow operators to save their professional skills for the more crucial phases of the process; furthermore producing consistent data through various control steps, also to benefit ensuing future statistical analysis that will allow improving proactive safety and safety programme decision-making.

2.1 ESTABLISHMENT OF THE WORK TEAM

The work team of the eE-MOR System includes a core of technical professionals and flight inspectors who are involved fulltime – the System Supervisors, the Focal Point of Regulation Departments - and a group of Focal Point

and Analysts/Investigators for operational, technical/maintenance, air traffic and airport related events. Also, with a Focal Point that guarantees the standardization of reporting by the ENAC Airport Offices. Finally, the team includes a Communication Specialist.

2.2 PREPARATION AND ISSUANCE OF ENAC ADVISORY CIRCULAR GEN 01

The ENAC Advisory Circular issued on November 20, 2007, identifies responsible people and procedures concerning notices to the Authority in case of aviation occurrences requiring mandatory reporting in accordance with legislative Decree 213/2006; as well as the procedure for creating a unified data base that includes accidents and serious incidents, as per legislative Decree 66/99.

2.3 PREPARATION AND ISSUANCE OF OPERATING PROCEDURE ASV 12

The purpose of the internal Procedure issued on 21/12/2007 is to define the main phases of the process relating to the management of the eE-MOR System. It includes, furthermore, the description of the responsibilities and of the phases of the ENAC internal process for the collection, recording, analysis and dissemination of information.

2.4 TRAINING INITIATIVES

In addition eE-MOR system collects also ENAC Airport Office reports about aviation occurrences happened on Italian airports.

A cycle of educational activities aimed at training ENAC Airport Offices personnel on the eE-MOR System, has been prepared and completed in April 2008, addressing primarily airport and SAFA (Safety Assessment for Foreign Aircraft) inspectors.

The training programme guarantees the correct functioning of the eE-MOR System also in light of ENAC's role on the airport and as reference for information exchange with the other States members of the European Community and with the European Commission.

A further training course about occurrences validation methodologies and the use of the ECCAIRS application, took place in September 2007, in order to set off the system.

It engaged the Focal Points and Analyst/Investigators for each competent ENAC Directorate.

3. INFORMATION AND PROMOTION FOR NATIONAL AVIATION INDUSTRY

In July 2007 ENAC organized the first workshop introducing the project, which was attended by approved concerned businesses.

Starting March 2008, several informative meetings took place with the same operators and managers, in order to promote consistent behaviour when sending information and in order to assess any critical aspect and/or any suggestion to improve functionality.

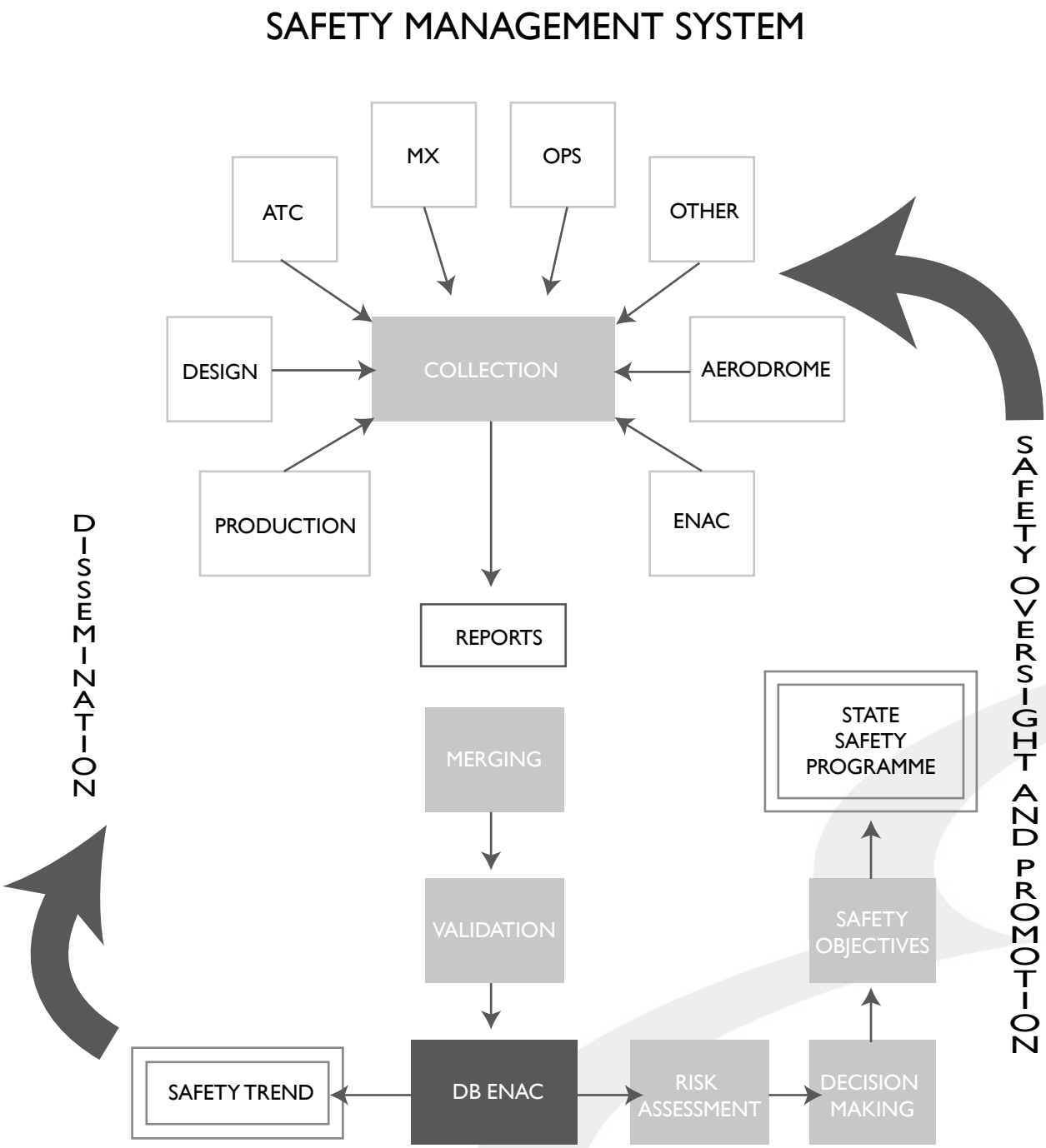
A questionnaire titled *How do you feel Just Culture in your organization - Checklist for Assessing Organizational Resilience* - was distributed at the meetings for an anonymous survey; this questionnaire was taken from a Checklist elaborated by Prof. James Reason of the University of Manchester, one of the top world scientist on research on human error in the organizations, who personally gave permission to use it.

The questionnaire is meant to be an additional significant first step towards a cultural change among both the authorities and the operators, to promote a continuous improvement on flight safety. The survey will be analyzed at the end of the informative meetings.

The cycle of meetings involved all Safety Managers of COA Operators, both in the Fixed-Wing sector and the Rotary-Wing sector, as well as the Safety Managers of forty-six national Airports and, also, representatives of the Associations of Flight Crew.

THE EE-MOR SYSTEM MODEL

Safety Data Integration to better understand risk



Conclusions

Upon a first assessment of data recorded with the eE-MOR System, there is evidence of an increase in the number of occurrence reports compared to previous years, both as a result of having extended reporting obligation to new subjects, such as aerodrome operators, and of the easiness of access and use that characterizes the system itself.

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