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THE MANAGEMENT OF CHANGE AS PART OF THE SAFETY MANAGEMENT SYSTEM OF SELECTED CIVIL AVIATION ORGANISATIONS

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Abstract

As air traffic is continously growing and the number of potential hazards for safety is also rising, improvement of management systems is required to ensure an adequate level of safety. The management of change constitutes an important part of the safety management system (SMS) defined in Annex 19 to the Convention on International Civil Aviation. It is one of twelve elements of SMS found in the 'Safety assurance' component. The management of change put in place in an aviation organisation demonstrates the considerable development of an SMS. This process is essential for managing safety in an efficient way. The article reports on the state of implementation of the management of change in selected civil aviation organisations and also points out the difficulties related with carrying it out in everyday life. The paper focuses on managing changes of certified aerodromes and air navigation service providers. In the conclusions, tools are proposed that enable the reader to improve the process.

Key words: aviation management, change management, safety management system, airport management, air navigation service provider management.

Introduction

Since 2013, when Annex 19 to the Convention on International Civil Aviation - Safety Management came into force, the aviation organisations of the signatories of this document have been obliged to implement a safety management system. Aviation is considered to be the safest mean of transport, and maintaining such a state in the light of the ever-increasing size of this mode of transport and the continuously emerging safety hazards is a big challenge for the management. In order to retain the position of the safest means of transporting people and cargo, it is necessary to improve the implemented processes and to use new, more effective tools. The safety management system consists of many elements. The most important of these are: the regularity of use of management tools, clear determination of responsibilities and organisational structures, and the involvement of everybody ensuring the safety of

flight operations. As part of the safety management system, a change management process should be developed, which was adopted as the subject of research, the results of which are presented in this article. The selection of the research subject was dictated by the need to systematise the current state of knowledge in the field of change management in civil aviation organisations. This subject has not yet been developed in a holistic way due to the short duration of the safety management system implementation which results in the need for its continuous improvement. Consequently, it is necessary to conduct research in order to identify ways and tools for effective change management aimed at ensuring a high level of flight safety.

The article looks at change management in different aviation organisations; examples of Polish and other countries' organisations have been used. The work focuses on change management in institutions providing air navigation services and at aerodromes.

The essence of the conducted research was to indicate the key factors determining the change management in civil aviation organisations and proposing solutions, allowing the level of safety and effectiveness of the implemented processes to be improved. The aim of the article is to identify the nature and conditions of the implementation of the change management process in selected civil aviation organisations, diagnose the most important problems arising during the implementation of change management and to determine the necessary improvements to this process. The main research problem was formulated in the form of the following question: How is the change management process implemented and what are the needs and the possibilities of its improvement?

The author assumes that the implementation of the change management process in aviation organisations is currently conditioned by aviation law (international, EU and national), but due to the dynamic development of the civil aviation sector, there is a need for its continuous improvement in the light of emerging challenges.

The structure of the change management process (based on appropriate legal regulations) was analysed, which also allowed the factors making up this process to be determined. The legal requirements were compared with internal procedures of selected aviation organisations in order to determine their fulfillment of these requirements. In addition, this method was used to identify the most frequent needs of aviation organisations in relation to change management. By synthesising information obtained from numerous sources, the author has defined the management of change in the aviation organisation. Using the methods of inference and synthesis, conclusions on the effectiveness of the change management process and the reasons for the problems were formulated.

Observation and the individual case method enabled the formal state of the implementation of the change management system in selected civil aviation organisations expressing the establishment of task structures and procedures in the change management process to be determined. Expert interviews with managers in selected organisations helped to answer related queries and improve understanding of the difficulties that arise on the way to properly functioning change management. Surveys were conducted in aviation organisations among the staff responsible for

change management as well as among other employees who were participants in the process.

The author realises that the research focuses on selected organisations, which means that the work is not a complete analysis of the change management process in civil aviation. However, an effort was made to present the essence of the issue in an objective and possibly in-depth manner.

Rationale of the management of change

Change management is one of the elements of the structure of the safety management system, which is summarised in Annex 19 to the Convention on International Civil Aviation Safety Management (hereinafter Annex 19). The table below contains four components and twelve elements that represent the minimum requirements related to the implementation of the safety management system.

Table 1

The ICAO SMS framework

COMPONENT	ELEMENT
1. Safety policy and objectives	1.1 Management commitment
	1.2 Safety accountability and responsibilities
	1.3 Appointment of key safety personnel
	1.4 Coordination of emergency response planning
	1.5 SMS documentation
2. Safety risk management	2.1 Hazard identification
	2.2 Safety risk assessment and mitigation
3. Safety assurance	3.1 Safety performance monitoring and measurement
	3.2 The management of change
	3.3 Continuous improvement of the SMS
4. Safety promotion	4.1 Training and education
	4.2 Safety communication

Source: Safety Management Manual (SMM), fourth edition (advance unedited), ICAO Doc 9859, Montreal, 2018.

Change management is one of three elements of the 'Safety assurance' component. The functioning change management process in the aviation organisation makes it possible to implement safety objectives because it allows identification of safety hazards resulting from modifications that appear in the organisation. Annex 19 sets the requirement to implement the change management process: 'The service provider shall develop and maintain a process to identify changes which may affect the level

of safety risk associated with its aviation products or services and to identify and manage the safety risks that may arise from those changes'[1].

The purpose of change management is to identify every future change in the organisation, to determine its impact on the service provision - to learn about the risks associated with change so that as a result, appropriate actions can be implemented that will allow risk to be minimised. The risks that are identified in the change management process can be of a different nature. However, when considering the change management process as an element of the safety management system, focus should be on the safety hazards. The change management process is one of the processes of the safety management system thanks to which the system is proactive.

In addition, change management allows awareness of personnel and involvement in the development of changes to be increased. The change management process, as an element of the structure of the safety management system, can also be used to manage other aspects of the aviation organisation's functioning: security, protection of the natural environment, human resources, compliance monitoring, and financial aspects. We have witnessed a tendency for management systems to be integrated in recent years, which increases their efficiency.

In order to achieve the goals described above, the basic assumptions that should be adopted while implementing the change management process should be properly understood. Changes in the organisation are inevitable. They take place whether we like it or not. The fourth edition of ICAO Doc 9859 lists a number of factors that can bring about changes to the aviation organisation, including, but not limited to:

- organisational expansion or contraction;
- business improvements that affect safety; these may result in changes to internal systems, processes or procedures that support the safe delivery of the products and services;
- changes to the organisation's operating environment;
- changes to the SMS interfaces with external organisations; and
- external regulatory changes, economic changes and emerging risks[2].

According to the guidelines contained in ICAO Doc 9859, the following considerations should be taken into account:

- Criticality. How critical is the change? The service provider should consider the impact on their organisation's activities, and the impact on other organisations and the aviation system.
- Availability of subject matter experts. It is important that key members of the aviation community are involved in the change management activities. This may include individuals from external organisations.

1 Annex 19 to the Convention on International Civil Aviation Safety Management – 'Safety Management', first edition, ICAO, Montreal, 2013.

2 Safety Management Manual (SMM), fourth edition (advance unedited), ICAO Doc 9859, Montreal, 2018.

• Availability of safety performance data and information. What data and information is available that can be used to give information on the situation and enable analysis of the change[3].

It is very important to conduct a hazard analysis and control the impact of our actions on the entire staff when planning to introduce any change in the organisation. One of the main hazards associated with any change is the unconsciousness of employees. Situational awareness of operational personnel and awareness of impending changes among management personnel allows for proper response and preparation of the environment for its modification. The early initiation of a conversation about the change and involvement of the staff in the preparation ensures that the change will be correctly noticed and implemented.

Procedures for the management of change

So how should you manage change? To answer this question, the process definition should be overridden: ICAO says change management means a 'formal process to manage changes within an organisation in a systematic manner, so that changes which may affect identified hazards and risk mitigation strategies are accounted for, before the implementation of such changes'[4]. The above definition indicates the need for regularity of management. The second feature of the process that results from the description is its formalisation.

Each company sets up its own safety management system, including the change management process, through internal procedures. Thanks to the knowledge and experience of the staff supervising the functioning of the system, it is adapted to the needs and specificity of the organisation, and the tools used to implement it facilitate work and ensure a systematic and repeatable process.

As we can read in ICAO Doc 9859, the change management process should include the following activities:

• understanding and definng the change, this should include a description of the change and why it is being implemented;

• understanding and defining who and what it will affect, this may be individuals within the organisation, other departments or external people or organisations. Equipment, systems and processes may also be affected. A review of the system description and organisation interfaces may be needed. This is an opportunity to determine who should be involved in the change. Changes might affect risk controls already in place to mitigate other risks, and, therefore, change could increase risks in areas that are not immediately obvious;

3 Safety Management Manual (SMM), fourth edition (advance unedited), ICAO Doc 9859, Montreal, 2018.

4 Safety Management Manual (SMM), fourth edition (advance unedited), ICAO Doc 9859, Montreal, 2018.

- identifying hazards related to the change and carrying out a safety risk assessment, this should identify any hazards directly related to the change. The impact on existing hazards and safety risk controls that may be affected by the change should also be reviewed. This step should use the existing organisation's SRM processes;
- developing an action plan, this should define what is to be done, by whom and by when. There should be a clear plan explaining how the change will be implemented and who will be responsible for which actions, and the sequencing and scheduling of each task;
- signing off on the change, this is to confirm that the change is safe to implement. The individual with overall responsibility and authority for implementing the change should sign the change plan; and
- preparing an assurance plan, this is to determine what follow up action is needed. Consider how the change will be communicated and whether additional activities (such as audits) are needed during or after the change. Any assumptions made need to be tested[5].

The change management process must be implemented in the organisation in its entirety - the use of its individual elements selectively is not effective and will not allow its goals to be achieved.

Aerodrome operator's change management

A documented change management process is necessary for all airports certified according to European regulations, i.e. certificated under Commission Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (hereinafter referred to as Commission Regulation (EU) No. 139/2014).

Since aerodromes operate on the basis of Commission Regulation (EU) No. 139/2014, clauses have been inserted in their operational instructions, regarding how the changes in the organisation are managed. It is worth noting that these records may also be in a separate procedure, to which, in such a case, reference must be made at the point quoted. At the Olsztyn-Mazury Airport, a description of the change management process can be found in the operational manual: 'the process of identifying and analysing changes that could have an impact on the safety level in the operational environment of the airport has been introduced. The aerodrome operator manages the safety risk related to the change. Change management has been documented to identify external and internal changes that may have an adverse

5 Safety Management Manual (SMM), fourth edition (advance unedited), ICAO Doc 9859, Montreal, 2018.

effect on safety. Change management uses existing risk identification processes as well as safety risk mitigation processes. The change may introduce new hazards, affect the legitimacy and / or effectiveness of existing mitigation strategies. Changes can occur outside or inside the organisation. (...) The change management process should take into account the following issues:

- criticality of the systems and actions;
- stability of systems and operating environments; and
- results obtained in the past'[6].

The formalisation of the airport change management process was based on the rule 'ADR.OR.B.040 Change' of Regulation (EU) No 139/2014, taking into account the requirements set out in the decision of the Executive Director of EASA[7].

European regulations for aerodrome operators indicate some changes, which should be managed in a special way and place some additional requirements in relation to them (those made before the implementation need to be approved by the Competent Authority). This applies to changes:

- affecting the terms of the certificate;
- affecting the certification basis;
- affecting the safety-critical aerodrome equipment;
- significantly affecting elements of the aerodrome operator's management system;
- the operational instructions of the aerodrome.

Most airports have developed forms that allow airport employees to report the need for changes and suggest how to implement them. Thanks to answers to a set of questions on the form, the management body of the organisation is able to asses the risk of the change. In order to familiarise the reader with potential changes occurring at an airport, the questions listed in the template of the change management form of Olsztyn-Mazury Airport[8] are summarised below:

- Is the change internal or external[9]?
- Is the change temporary or permanent?
- What is the motive/ reason for introducing the change?
- When is it planned to introduce the change?
- Does the change have an influence on the functioning of several departments of the organisation?
- Does the change have an influence on the documentation of the organisation?

6 Operational Manual of the Olsztyn-Mazury Airport INOP EPSY, ed. 0EU, d. 08, Szymany, 2018, p. 2.2.10.

7 'AMC1 ADR.OR.B.040 (a); (b) Changes' from decision ED 2014/012/R and consulting material 'GM1 ADR.OR.B.040 (a); (b) Changes', 'GM1 ADR.OR.B .040 (f) Changes', 'GM2 ADR.OR.B.040 (f) Changes', 'GM3 ADR.OR.B.040 (f) Changes' from the same decision.

8 Annex 11 to the Operational Manual of the Olsztyn-Mazury Airport INOP EPSY, ed. 0EU, d. 08, Szymany, 2018.

9 Internal change results from the organisation's own decisions. External change results from the decision of an external entity or environment change (p. ex. legislation change, ownership change).

- Does the change require the approval of the Competent Authority on the basis of 'ADR.OR.B.040 Changes'?
- Does the change have an impact on the operational characteristics of the airport?
- Is the change related to the presence of an object / vehicle / facility at airside?
- Does the change affect the terms of the airport certificate / certification basis?
- Does the change have influence on the content of Operational Manual of the Olsztyn-Mazury Airport INOP EPSY?
- Does the change affect the entry in the register of aerodrome equipment?
- Does the change affect the registration documentation of the airport?
- Does the change affect the aerodrome cartographic documentation?
- Does the change affect the content of any of letters of agreement?
- Does the change affect the Aeronautical Information Publication records of the airport?
- Does the change require a NOTAM issue?
- Does the change affect the airport security programme?
- Does the change affect the organisational structure?
- Does the change have an influence on cooperation with external entities?

The changes that can have a major impact on the safety of aviation operations at airports are infrastructural changes. Experience shows that during the construction works carried out at an airport, there is a high risk of events having a negative impact on safety.

The introduction of any infrastructure change at the airport is a complex process. In addition to the difficulties associated with the conduct of construction works, while avoiding the operational closure of the airport for the duration of their lifetime, there are also a number of others: those related to obtaining relevant permits necessary to meet the requirements of administrative, construction, environmental and aviation law. Particular attention should be paid to the first phase of implementation of the airport infrastructure change: its assessment and classification. It is necessary to determine the scope of the planned change, its impact on the organisation itself and on the cooperating organisations, its duration and the date of its implementation. Examples of questions to be asked during preparation for the construction of a new taxiway at an aerodrome are listed below:

- Will the taxiway be equipped with navigation lights?
- Will cranes be used during construction that may become an aviation obstacle?
- Will there be deep trenches in the runway strip, which may endanger the safety of take-offs and landings?
- Will there be obstacles on the runway strip preventing it from being used?
- How will the rules of driving at the airport change during the construction works?
- Will the rules of driving at the airport change after the new taxiway is released for use?

- To what extent will the work of air traffic controllers and / or of the aerodrome flight information service officers be hindered during construction?
- Will the construction require fencing?

At this point, it is worth drawing the attention of the Reader to the requirements related to the safety of work carried out at the airport. Many airport managers, in order to implement procedures that ensure that the work carried out at the airport did not affect the safety of aircraft operations, prepare instructions agreed with the contractor of construction works and the institution providing air traffic services. Other entities can be attached to the reconciliation team as needed. Concluding an agreement and setting clear rules in this area, as well as conducting working meetings, ensure that:

- The procedures are appropriate to the volume and nature of operations at the aerodrome.
- Construction or maintenance work on the movement area, or work affecting aerodrome operations are planned, established, implemented, or approved by the aerodrome operator.
- The scope of work, physical extent, and time period are notified to concerned relevant parties. If such work will render limitations to the use of a particular runway, additional measures should be implemented to ensure safety.
- Roles and responsibilities for operations and tasks associated with the reduction of runway length available and the work in progress (WIP) are clearly understood and complied with.
- The aerodrome operator put in place appropriate measures to monitor the safety of the aerodrome and aircraft operations during aerodrome works such that timely corrective action is taken when necessary to assure continued safe operations.
- The aerodrome operator should ensure the works site is returned to operational use in a safe and timely manner by ensuring:

– the works site is cleared of personnel, vehicles, and plant in a safe and timely manner;

– the works-affected area is inspected for operational serviceability in accordance with the hand-back procedures; and,

– relevant authorities or organisations are notified of the restoration of aerodrome serviceability in accordance with procedures, using suitable means of communication.[10]

10 'AMC1 ADR.OPS.B.070 Aerodrome works safety' from decision ED 2014/012/R.

Source: Polish State Commission on Aircraft Accidents Investigation, Preliminary Report v. 01, event no: 982/14, 2014.

Figure 1. Marking in the middle of a closed runway under construction

One should also not forget about the necessity of constant compliance with the law, which must be provided by the aerodrome operator. Any legislation changes must be reviewed by the organisation to identify the need for possible changes. On April 1st, 2019, the Act of 14 December 2018 on amending the Act of 3 July 2002 on Aviation Law and certain other acts came into force. This is an example of a change in the law that could turn out to be an external change for airport operators (as well as other types of aviation organisations in Poland).

Regulation (EU) No 139/2014 emphasises the need to comply with the certification specifications issued by the European Union Aviation Safety Agency (EASA), which may consequently make changes at the airport. The rules stipulate that if changes are made to the certification specifications established by the Agency, a review should be carried out to determine any certification specifications applicable to the aerodrome and, when it proves necessary, initiate the change management process and make the necessary changes at the airport. The Civil Aviation Authority of Poland has developed a form by which airport managers apply for approval of the date of adaptation to a given new or amended provision.

Each change at an airport must therefore be treated individually and discussed in the group of specialists from various departments of the organisation. This discussion is a key element in determining the schedule for implementing the change.

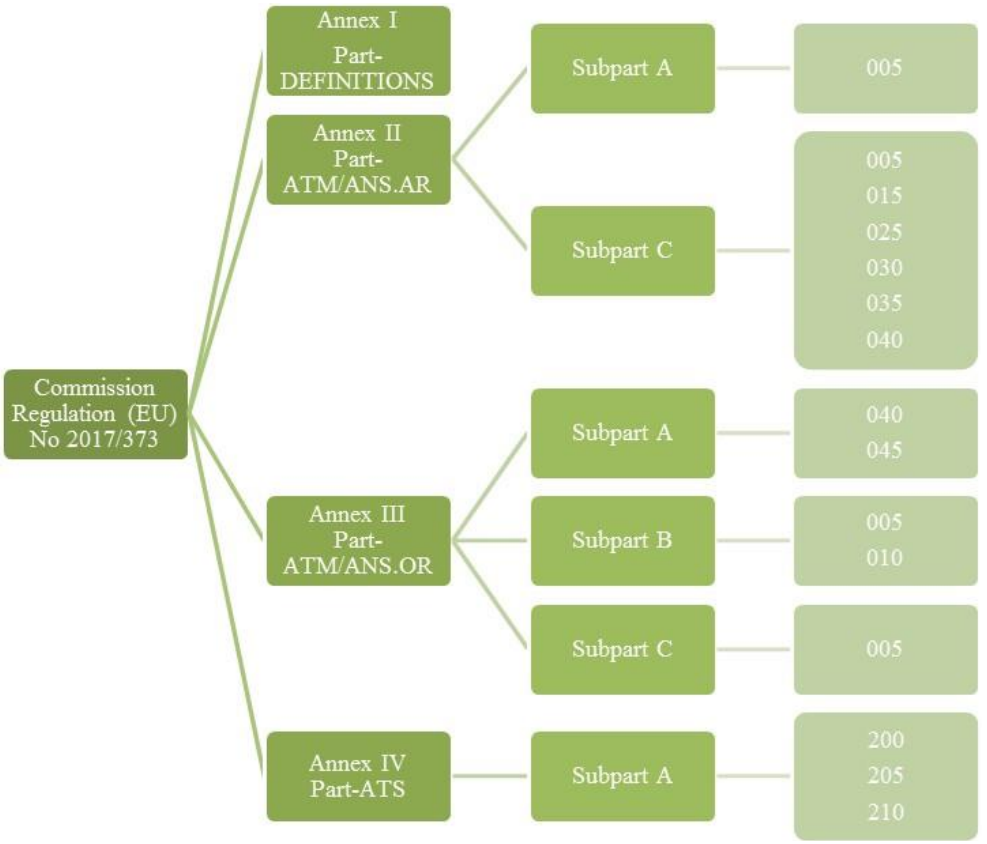
Air navigation service provider's change management

The safety management system is also implemented in institutions providing air navigation services, which is tantamount to apply the change management process. The European legislation concerning this type of aviation organisation is quite detailed in this aspect and ensures standardisation in all European Union countries (and those from outside the Union that apply the guidelines of these regulations).

Air traffic service providers are currently obliged to implement change management based on point 3.2. 'Safety requirements for risk assessment and mitigation with regard to changes' of Annex II to the Commission implementing regulation (EU) No. 1035/2011 of 17 October 2011 laying down common requirements for the provision of air navigation services and amending regulations (EC) No. 482/2008 and (EU) No. 691/2010 (hereinafter referred to as the Commission Regulation (EU) No. 1035/2011). Although Commission regulation (EU) No. 1035/2011 imposes the obligation to implement a safety management system (including the change management process) solely for air traffic services providers, Polish legislation has also extended this obligation to institutions providing meteorological services: 'For reasons of safety of air traffic to provide a civil aviation meteorological service an institution: (...) establishes a safety management system that meets the requirements set out in Annex II to Commission Implementing Regulation (EU) No. 1035/2011.'[11] In addition, the provisions of the said Regulation of the Commission (EU) No. 1035/2011 in the Polish legal reality are supplemented by the provisions of the Regulation of the Minister of Transport, Construction and Maritime Economy of March 21, 2013 regarding safety-related changes in functional systems affecting safety (consolidated text of the Journal of Laws of 2013, item 431).

However, the legal situation described above will be significantly modified on January 2nd, 2020, when the Commission implementing regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No. 482/2008, Implementing Regulations (EU) No. 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No. 677/2011 (hereinafter referred to as Commission Regulation (EU) No. 2017/373) will be applied.

11 Regulation of the Minister of Transport, Construction and the Maritime Economy of October 3, 2013 on the meteorological service of civil aviation (consolidated text of the Journal of Laws of 2013, item 1202).



Source: Own elaboration based on Easy Access Rules for ATM-ANS (Regulation (EU) 2017/373), EASA, June 2018.

Figure 2. Structure of Commission Regulation (EU) No 2017/373 with regard to change management process

In order to determine the functioning of change management in institutions that provide air navigation services, a diagnostic survey was conducted using the expert interview technique with Kristjan Telve - Safety Manager of Estonian Air Navigation Services (EANS) - an organisation that provides air traffic services, communication, navigation and surveillance services and aeronautical information services. EANS provides services in Estonian airspace (Tallin FIR), including airports in Tallinn and Tartu.

The expert interviewed has been associated with the aviation industry for 19 years, of which he has been in management for 11 years. For 10 years of his career, the respondent held managerial positions in the Estonian Civil Aviation Authority. For 5 years, he worked as an air traffic controller. In the organisation in which he is currently working, the change management process was implemented more than 10 years ago, and its functioning is supervised by two people (who also have other responsibilities).

The purpose of the first question was to get a description of the change management process implemented in Estonian Air Navigation Services. The respondent highlighted its charcteristics by stating: 'Each and every change is managed by a dedicated team consisting of employees from our organisation. The number of members depends on the magnitude of the change: it can be 2-3 people or 10. For every change, the team is officially chosen. When someone comes up with a change he or she sends it to the CMB (Change Management Board) which consists of all Heads of Departments. They then agree or don't agree to the change. If it's agreed, then every Head of Department at the CMB meeting will choose a nominee of his/her department to be part of the team dedicated for the change (if it's necessary or they see the benefits of doing it). We have one procedure in EANS which concerns change management. It was issued in order to be compliant with Regulation 1035/2011, which requires a documented process of managing the changes in functional systems from ANSPs. It has around 20 pages, including annexes which are mainly screenshots of the IT program we use to make the process of change management easier. I think that our procedure is clear and understood by the personel. The whole process of change management in EANS is digital.'

The next question concerned the method of quantitative monitoring of the process: 'did EANS implement any safety or efficiency indicators concerning the change management process?' It was found out that the organisation has quality indicators and safety objectives that give a picture of the functionality of the change management process. EANS does not implement indicators directly related to change management.

The third interview question referred to the key elements of the change management process. The author, by asking the question: 'What do you think is the most important element of change management?' wanted to obtain an expert opinion in this respect in relation to the practice of his organisation. The Safety Manager explained that 'all processes are very important and can't function separately. Change management itself makes it possible to identify risk areas and possible hazards related to them. Also monitoring part and reporting part are very important: if you don't receive any reports regarding that change which is already operational then you don't know what has to be fixed or how these hazards and risks have materialised. I would say that reporting is very important in the change management process.'

The next questions concerned the manner of supervising the change management process and communication in the scope of this supervision between the Estonian Civil Aviation Authority and EANS. Kristjan Telve pointed out that 'In the case of Estonia, the methods of managing changes are regulated by CAA's General Director's guidelines. It's a very detailed document and easy to follow. It includes a description of the process: what needs to be done, when and how. These guidelines are very useful for ANSPs.' Referring to his experience as the General Director of the Civil Aviation Authority, Mr. Telve drew attention to 'the most common (and only) problem, as I remember, was about reporting changes which don't require the agreement of the CAA but which have to be reported. This requirement was not always clear (or was being forgotten) for different organisations, but it was explained

and the level of reporting such changes improved over time. 'We don't have any workshops to share experiences of managing changes. But around a month ago, the CAA organised a workshop conducted by Eurocontrol representatives concerning the new certification regulation (2017/373) for different organisations. This workshop gave us an overview about the new regulation: also about change management requirements. Representatives of EANS, Estonian CAA and other ANSPs of Estonia (also military one) attended the meeting.

The experiences of organisations are shared in an unofficial way: the aviation community of Estonia is quite small and it's easy to stay in touch with colleagues from other organisations.'

The last of the questions asked referred to the expert's operational work as an air traffic controller and the beginnings of the change management in EANS. 'The formal process was not introduced then. We were managing changes but there was no bureaucracy for it. I remember the implementation of change management (year 2003), which was a complex process: updates of the procedures, software etc. Change management didn't cover all kinds of changes as it does today: the change of roster which I described before wouldn't be done using these procedures. Also, the company was a lot smaller then, so the change management was less complicated, specifically because the communication between us was easier, as therewere not so many of us. People always knew that change management was necessary, they saw risks related to the introduction of new procedures, equipment etc.' said Mr. Telve.

Key challenges to the management of change

During the workshop on the safety management system, organised on February 20th, 2019 by the Polish Civil Aviation Authority for representatives of various types of aviation organisations, the change management process provoked heated discussion. Participants talked about the low process efficiency and the lack of clear guidelines when the process should be used. Workshop attendees reported the need to systematise the formalisation of the process. Different interpretation of when to use change management leads, both internally in organisations, and between the Civil Aviation Authority and representatives of the organisation, to disagreement. According to the author, this is a result of sthe relatively little experience of applying change management in practice, resulting in lack of awareness when the process proves to be helpful in managing the organisation and when it becomes useless to fill out forms. As mentioned at the meeting, change management can be a great help for the organisation's manager, but it can also freeze the business of the organisation.

In order to verify the implementation stage of change management in civil aviation organisations and to identify the needs for improvement of this process, empirical research was conducted among representatives of seven aviation organisations of various types. The research involved representatives of aerodromes, air navigation service providers, an aviation operator and maintenance, repair and

overhaul organisations operating in Poland, Estonia, Georgia and Slovakia. In all these countries, the regulations of the European Union bodies apply, and they are based on the implementation of change management processes in civil aviation organisations. The research was carried out by means of a diagnostic survey (expert interview technique and questionnaire).

Based on respondents' answers, it is problematic to identify the need to implement the change, determine the impact of change on safety, determine whether the change affects the safety of the functional system (this applies to air navigation service providers), develop process documentation, classify hazards and monitor change. The Safety Manager of one of the air navigation services providers admitted that in his daily work he encounters difficulties in meeting the requirements of engaging operational employees: he works in a small organisation (about 200 employees), most of whom are people involved in the operational area. Other respondents also pointed out difficulties resulting from the time-consuming nature of the process.

Conclusions

The results of the conducted research have confirmed that the essence of change management in an aviation organisation is to ensure safety through risk management. The implementation of this process allows for effective identification of hazards, which ensures a proactive approach to the safety management system. In addition, the implementation of effective safety risk mitigation actions is ensured in this way. This process is conditioned by many factors: legal, operational, organisational and technical as well as economic. Analysing the literature, the author stated that the previously published normative documents do not exhaust the complex issue of change management in civil aviation organisations.

It has been demonstrated that the implementation of change management in civil aviation organisations (for which it is a required process) is completed, as it is a condition for obtaining a certificate confirming compliance with the requirements for their internal safety management systems. Nevertheless, for the sake of emerging problems in its functioning and unsatisfactory effectiveness, there is a need for its continuous improvement. In addition, it was found that change management processes currently implemented in organisations requires further improvements to be better understood by their contractors, and the opportunities offered by this process were fully used by management personnel.

The observed dynamic development of the air transport market forces the need for continuous improvement of the management of aviation organisations, including the change management process. The results of the conducted research have confirmed that it is possible to solve emerging problems by improving the operation of this process in organisations. Research has shown that the key element ensuring high efficiency of the process is to understand its essence and significance for maintaining an acceptable level of safety by representatives of the aviation

industry: both process contractors in civil aviation organisations and by the aviation regulatory authorities. It has been confirmed that the maximum limitation of the documentation of the process will result in it becoming more practical. The creation of simple, unambiguous procedures containing flow charts and the use of digital tools will make the process more accessible.

Difficulties in the research process resulted in poor quality of available literature about the change management process in civil aviation organisations. The subject matter has not been sufficiently explored in the industry literature so far. Defining ways to simplify and optimise the process of change management may be crucial in improving safety management in civil aviation organisations.

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