

Open University of Cyprus

Faculty of Economics and Management

**Postgraduate (Master's) Programme of
*Business Administration (MBA)***

Postgraduate (Master's) Dissertation



**Development of a Regulatory Training Program for the
Operator of Cyprus Airports**

Marios Christofi

Supervisor

Michalis Socratous

November 2020

Open University of Cyprus

Faculty of Economics and Management

**Postgraduate (Master's) Programme of
*Business Administration (MBA)***

Postgraduate (Master's) Dissertation

**Development of a Regulatory Training Program for the
Operator of Cyprus Airports**

Marios Christofi

Supervisor

Michalis Socratous

The present Postgraduate (Master's) Dissertation was submitted in partial fulfilment of the requirements for the postgraduate degree in Business Administration (MBA) Faculty of Economics and Management of the Open University of Cyprus.

November 2020

BLANK PAGE

Summary

The purpose of this dissertation was to register the training requirements for personnel operating in the airside areas of Larnaka and Pafos International Airports based on European Union requirements. It identified the training subjects that Commission Regulation (EU) No 139/2014 obligates airport operators to provide to their staff and to personnel of other agencies operating in the airside areas of the airport, the preferred training methodology and methods for measuring and assessing the competency of trainees as well as the frequency of recurrent training and the importance assigned to each training subject by airport personnel.

To define the required training subjects, the qualitative approach was applied, and data were collected primarily from European Union Aviation Safety Agency and International Civil Aviation Organization publications. For the rest of the research questions, a survey was conducted via questionnaires that were distributed to airport personnel who in turn provided feedback on the aforementioned issues. The results indicated that to comply with European Union Aviation Safety Agency regulatory requirements the airport operator must organize and deliver ten training subjects. While all were evaluated relatively high on the importance scale, some were considered more important than others.

Another conclusion of the study is that recurrent trainings are considered a necessity, although the frequency varies according to the subject. Also, annual competency checks can be incorporated in the training plan in order to replace annual recurrent trainings. In this case, the training frequency decreases for all training subjects. With some exemptions, a combination of training methods was preferred for both initial and recurrent trainings while the same applies for testing following the initial trainings. In the case of testing following recurrent trainings, a standalone testing method is preferred in most cases. This also applies regarding the preferred method for assessing the competency of employees during annual competency checks.

A comprehensive training plan based on the results of the survey is presented in Appendix D of this dissertation.

Περίληψη

Ο σκοπός αυτής της διατριβής ήταν να καταγράψει τις απαιτήσεις εκπαίδευσης για το προσωπικό που επιχειρεί στον ελεγχόμενο χώρο των διεθνών αερολιμένων Λάρνακας και Πάφου, βάσει των απαιτήσεων της Ευρωπαϊκής Ένωσης. Η μελέτη εντόπισε τις εκπαιδεύσεις που ο κανονισμός (ΕΕ) αριθ. 139/2014 της Ευρωπαϊκής Επιτροπής υποχρεώνει τους διαχειριστές αερολιμένων να παρέχουν στο προσωπικό τους και στο προσωπικό άλλων οργανισμών που λειτουργούν στον ελεγχόμενο χώρο των αεροδρομίων, την προτιμώμενη μεθοδολογία εκπαίδευσης και μεθόδους για τη μέτρηση και την αξιολόγηση της ικανότητας των εκπαιδευομένων, καθώς και τη συχνότητα της περιοδικής εκπαίδευσης και τη σημασία που αποδίδεται σε κάθε εκπαιδευτικό αντικείμενο από το προσωπικό του αεροδρομίου.

Για τον καθορισμό των απαιτούμενων εκπαιδεύσεων, εφαρμόστηκε η ποιοτική προσέγγιση και τα δεδομένα συλλέχθηκαν κυρίως από εκδόσεις της Ευρωπαϊκής Υπηρεσίας Ασφαλείας Αεροπορίας και του Διεθνούς Οργανισμού Πολιτικής Αεροπορίας. Για τα υπόλοιπα ερωτήματα, διεξήχθη μια έρευνα μέσω ερωτηματολογίων που διανεμήθηκαν σε προσωπικό του αεροδρομίου που με τη σειρά του παρείχε ανατροφοδότηση σχετικά με τα προαναφερθέντα θέματα. Τα αποτελέσματα έδειξαν ότι για να συμμορφωθεί με τις κανονιστικές απαιτήσεις της Ευρωπαϊκής Υπηρεσίας Ασφαλείας Αεροπορίας, ο διαχειριστής των αερολιμένων πρέπει να οργανώσει και να παραδώσει δέκα εκπαιδευτικά θέματα. Ενώ όλα αξιολογήθηκαν σχετικά υψηλά ως προς την σημαντικότητά τους, μερικά θεωρήθηκαν πιο σημαντικά από άλλα.

Ένα άλλο συμπέρασμα της μελέτης είναι ότι οι περιοδικές εκπαιδεύσεις θεωρούνται αναγκαίες, αν και η συχνότητα ποικίλλει ανάλογα με το εκπαιδευτικό θέμα. Επίσης, οι ετήσιοι έλεγχοι ικανότητας μπορούν να ενσωματωθούν στο πρόγραμμα εκπαίδευσης και να αντικαταστήσουν τις ετήσιες περιοδικές εκπαιδεύσεις. Σε αυτήν την περίπτωση, η συχνότητα εκπαίδευσης μειώνεται για όλα τα εκπαιδευτικά θέματα. Με ορισμένες εξαιρέσεις, προτιμήθηκε ένας συνδυασμός μεθόδων για τις αρχικές και για τις περιοδικές εκπαιδεύσεις, ενώ το ίδιο ισχύει για την αξιολόγηση μετά τις αρχικές εκπαιδεύσεις. Στην περίπτωση αξιολόγησης μετά από περιοδικές εκπαιδεύσεις, προκρίνεται μια μέθοδος εξέτασης στις περισσότερες περιπτώσεις. Αυτό ισχύει επίσης για την προτιμώμενη μέθοδο αξιολόγησης ικανοτήτων κατά τη διάρκεια των ετήσιων ελέγχων ικανότητας.

Ένα περιεκτικό πρόγραμμα εκπαίδευσης με βάση τα αποτελέσματα της έρευνας παρουσιάζεται στο Παράρτημα Δ αυτής της διατριβής.

Acknowledgments

I would like to express my gratitude to my supervisor, Mr. Michalis Socratous, for his continuous support and guidance. I would also like to thank all airport employees who participated to the survey and especially my colleagues who facilitated the completion and collection of the questionnaires.

TABLE OF CONTENTS

Chapter 1 Introduction	1
1.1 Statement of the Problem	1
1.2 Background and Need	1
1.3 Purpose of the Dissertation	2
1.4 Research Questions	3
Chapter 2 Review of the Literature	4
2.1 Commission Regulation (EU) No 139/2014	4
2.2 Implementation in Europe	6
2.3 Methodology of Training	10
2.4 Conclusions	14
Chapter 3 Methodology.....	17
3.1 Methodology	17
Chapter 4 Results.....	25
4.1 Importance of Training Subjects	25
4.2 Acceptability of Annual Competency Checks as Substitute for Recurrent Training and Testing	27
4.3 Recurrent Training Frequency	28
4.4 Correlation between Training Importance, Competence Checks and Training Frequency	31
4.5 Training Methods	32
4.6 Testing of Trainees' Competency Following Training	36
4.7 Evaluation Checks Method	41
Chapter 5 Conclusions	43
5.1 Findings	43
5.2 Implementation of Findings	46
5.3 Limitations and Recommendations for Future Research	47
Appendix A EASA Training Requirements and Recommendations	48
Appendix B Training Subjects and Indicative Content.....	70
Appendix C Questionnaire	87
Appendix D Proposed Training Plan	94
References.....	100

CHAPTER 1 INTRODUCTION

1.1 Statement of the Problem

On February 2014, the Commission Regulation (EU) No 139/2014 was adopted, laying down requirements for the certification of airports operating in Member States of the European Union (European Commission, 2014). The regulation introduced procedures and processes that airports are obligated to implement in order to be certified by the Competent Authorities of the States, including required training subjects for personnel of airport operators and agencies, whose duties are relevant to the certification requirements. While some training subjects are identified, no guidance is provided for a systematic approach to the training of airport personnel. At a national level, the Competent Authority, namely the Department of Civil Aviation, has not incorporated the provisions of the European regulation into a legal framework that will dictate the obligations of the airports. In addition, the airport operator, has not developed a comprehensive training plan that will incorporate the training subjects required, the methods, training techniques, frequency as well as the process for evaluating the efficiency of the trainings (Department of Civil Aviation, 2017) .

1.2 Background and Need

The previous regulatory framework, issued and audited by the International Civil Aviation Organization (hereafter ICAO) (International Civil Aviation Organization, 2001), did not contain obligatory training subjects (other than generic references to the training of rescue and firefighting personnel and airside driving) (International Civil Aviation Organization, 2016) and the relevant provisions issued by ICAO consisted of recommendations and guidelines. As a result, no specific training requirements or programs were developed at a national level in Cyprus. The same practice continued to apply on a European level following the adoption of Commission Regulation (EU) No 139/2014 as the agency responsible of the oversight of the State Competent Authorities, the European Aviation Safety Agency, has not issued requirements for the

implementation of the regulation. Any relevant guidelines, issued in the form of Acceptable Means of Compliance and Guidance Material, do not deal systematically with the specifics of a training program; they are limited in listing some training modules without specifying their frequency or methodology (European Aviation Safety Agency, 2019). Training programs for specific subjects have been developed by organizations including the International Civil Aviation Organization (International Civil Aviation Organization, 2020), the Airport Council International (Airports Council International, 2020) and the International Air Transport Association (International Air Transport Association, 2020). Although accepted by the Competent Authorities, they are provided at high cost per person, infrequently and at specific training centers abroad.

As a result, the development of a training program based on the European regulations pertinent to the certification of airports will cover the basic need of airports for compliance. It will also benefit the airport operator as it will establish a comprehensive plan that will dictate the annual training schedule, thus conserving human resources and time currently utilized for organizing each training individually. On a national level, the airports' training plan, upon approval by the Department of Civil Aviation, will function as a de facto State Training program which may be used for compliance with the European Aviation Safety Agency's requirements and expand to cover the training needs of organizations and departments that are not under the scope of the Aerodrome Section of the Competent Authority, such as the Air Traffic Services.

1.3 Purpose of the Dissertation

The purpose of this dissertation is to identify and register the training requirements for personnel operating in the airside areas of Larnaka and Pafos International Airports based on European Union requirements. The outcome will be presented as a training plan which will include the methodology that will be applied for each training subject, training technique and frequency of recurrent trainings. It will also assign for each training subject the appropriate method for the evaluation of the trainings.

In order to achieve its purpose, the dissertation will be based on the study of relevant literature, mainly the regulatory documentation issued by the International Civil Aviation Organization and the European Aviation Safety Agency (hereafter EASA). It will also utilize the practices implemented at selected European airports. Finally, it will

incorporate feedback by management and supervisory personnel, who are responsible for organizing and delivering trainings as well as front line employees who are the target group of the training sessions.

1.4 Research Questions

The main questions that this dissertation will answer are the following:

1. What are the training subjects that Commission Regulation (EU) No 139/2014 obligates airport operators to provide to their staff and to personnel of other agencies operating in the airside areas of the airport?
2. Which training subjects are considered more important and what the frequency of recurrent training should be?
3. What is the preferred training methodology ?
4. How should the efficiency of the training, in terms of ensuring the competency of trainees, be measured or assessed?

CHAPTER 2

REVIEW OF THE LITERATURE

2.1 Commission Regulation (EU) No 139/2014

The Commission Regulation (EU) No 139/2014 (European Commission, 2014) was adopted by the European Commission six years after the European Parliament and the Council of the European Union adopted Regulation (EC) No 216/2008 which provided the legislative context for introducing common rules in the field of civil aviation and establishing a European Aviation Safety Agency (European Parliament and the Council of the European Union, 2008). It is an Implementing Rule of Regulation (EC) No 216/2008, which aims to establish and maintain a high uniform level of civil aviation safety in Europe. It introduced the requirements and administrative procedures for the certification of airports operating in Member States of the European Union and replaced national requirements with regard to the management, certification and operations of aerodromes in European states which, until then, were mainly based on guidelines and requirements issued by the International Civil Aviation Organization (International Civil Aviation Organization, 2016) (International Civil Aviation Organization, 2001).

The need for the adoption of the regulation stemmed from the realization that procedures and standards which were introduced as directives either by ICAO or the European Civil Aviation Conference (considered to be the European branch of ICAO) and had no binding effect, were not implemented uniformly in all Member States ((Siedenburg, 2008)). While regulation (EC) No 216/2008 introduced legally binding standards for all sectors of civil aviation, it wasn't until the adoption of Regulation (EU) No 139/2014 that the standards to be applied at the airports were introduced, although they were not fully in effect until the 1st of January 2018 (European Commission, 2014). The new rules signified a new chapter for European airports, promising high safety standards and regulatory harmonization for European airports ((Spiliotis & Sickert, 2018).

Among the areas mostly impacted, was the training of personnel involved in the safety management and operational systems of airports as for the first time, Member States had to abide to relevant legal obligations. The main article pertaining to training requirements as included in the regulations dictated that *the aerodrome operator shall implement and maintain a management system integrating a safety management system and that the management system shall include a safety training programme that ensures that personnel involved in the operation, rescue and firefighting, maintenance and management of the aerodrome are trained and competent to perform the safety management system duties*. It also delegated to the aerodrome operator the obligation to *ensure that personnel involved in the operation, maintenance and management of the aerodrome are adequately trained in accordance with the training programme and that unescorted persons operating on the movement area or other operational areas of the aerodrome are adequately trained*. Additional articles provided for the establishment of training and proficiency check programs, qualified and experienced instructors and assessors and training and proficiency check records. Specific articles required training for drivers of vehicles in the movement area of airports and for personnel involved in rescue and firefighting services of the aerodrome (European Commission, 2014).

In order to provide guidance on the regulation, EASA published in August 2017 a document which included the acceptable means of compliance and certification specifications for airport facilities (European Aviation Safety Agency, 2019). The document provided guidance as well as acceptable means by which airports could comply with the regulation. With regard to training, more specifics were provided in terms of what the content of the training courses should include as well as more specific training requirements, including training for movement area inspections and wildlife management. Despite though the declared scope to provide uniformity at a European level, it did not include requirements for training frequency, training methodology or proficiency checks. Also, there were no information regarding the required training for operational and maintenance personnel. As such, it did not provide a comprehensive legal framework that all European airports could implement uniformly, leaving space for variations among the various Member States or even airports operating at the same country.

2.2 Implementation in Europe

Although the full implementation of the regulation was scheduled for the 1st of January 2018, a survey conducted by EASA revealed that by April 2017 only 131 out of 471 airports under the scope of the regulation achieved certification while at 16 Member States no airports were certified (De Crescenzo & Sickert, 2017). In addition, 5% of the airports were not certified by the end of 2017 (Spiliotis & Sickert, 2018). It seems that for many States and airports, the certification process was expedited and compressed within a limited time period while a survey conducted by Airports Council International amongst airport certification managers indicated that simplification and clarification of existing rules was one of the three more significant expectations of EASA rulemaking (Spiliotis & Sickert, 2018). The same source identified the lack of clarity as a significant issue because a majority of the participants to the survey answered that national Civil Aviation Authorities provided their own (usually stricter) interpretation to EASA regulations.

The lack of clarity in the way Civil Aviation Authorities (hereafter CAA) implemented the regulation, manifested to the various publications issued at a national level. The CAA of the United Kingdom, an organization with a well-established practice of providing detailed publications with guidelines for airport operators, was the first to revise all existing documentation and incorporate EASA regulations and acceptable means of compliance. Among the documents which were updated was *CAP 168: Licensing of Aerodromes* (Safety Regulation Group, 2019) and *CAP 642: Airside Safety Management* (Safety and Airspace Regulation Group, 2018). The latest, incorporated guidelines for *Training and proficiency* in Chapter 6, including a detailed syllabus for *Induction training* for personnel new to an organization or department, covering the EASA requirement for providing adequate training to unescorted persons operating on the movement area or other operational areas of the aerodrome.

In addition, UK CAA ascertained that *CAP 700: Operational Safety Competence* (Safety Regulation Group, 2002) which was issued as a joint initiative of UK airport operators and CAA, was compliant with EASA requirements for establishing competences and training requirements for various operational tasks. The document identifies *Areas of Competence* which, in the form of checklists, are correlated with specific posts and the required background knowledge. Moreover, UK CAA issued additional checklists for each

section of the certification process (Civil Aviation Authority, 2020). Compliance Question Bank (QB) 9 refers to *Training and Proficiency Check Programmes* and relates to all personnel involved in the operation, maintenance, and management of the aerodrome. It breaks down all acceptable means of compliance regarding training of personnel as included in the EASA documentation but does not include specific trainings or instructions about how the trainings should be delivered.

With regard to the frequency and methodology of the trainings, UK CAA in *CAP 642* (Safety and Airspace Regulation Group, 2018) states that it should be reviewed at least annually to ensure the effectiveness of the training. It also recommends the introduction of methods to measure the achievement of the training objectives as well as a system of feedback from employees. In addition, it distinguishes induction training (offered to all new employees) from specialist training and states that refresher training frequency should be provided based on a risk and needs assessment.

The UK airports have proceeded in various degrees to incorporate these provisions in their Aerodrome Operational Manuals (hereafter AOM) in line with the relevant provision of Regulation (EU) No 139/2014 (ADR.OR.E.005 Aerodrome manual (I)). Gatwick Airport's Aerodrome Manual (Airside Compliance, 2019) provides a list of the training modules provided to personnel. Practical and theory assessment is required for each module while competency evaluation is performed by the Airside Training Manager, in conjunction with the Line Manager, taking into consideration the tasks related to a specific training. For each subject, a training syllabus is established and includes the requirements for proficiency checks (varies from annual to five years cycles). For third parties, an e-learning package titled *Airside Safety Awareness* is available in order to cover the requirements for provision of training to all personnel operating unescorted in the movement area.

Manchester Airports follows a different approach. As stated in their Aerodrome Manual (Manchester Airports Group Airfield Operations, Safety & Compliance, 2018), the airport operator developed a training package named *Airfield Safety Awareness* which consists of a DVD and accompanying booklet. The package is primarily addressed to third parties' employees who must sign a declaration form confirming they have viewed and understood the DVD contents. With regard to the training content, a list of training subjects agreed in the context of Apron Safety Committee is provided but no specifics on

competency checks, frequency and methodology are published. Chapter 2.7 provides details regarding competencies per areas of expertise and relevant training needs based on CAP 700. More detailed are the information provided for the training required for obtaining an airside driver permit, where requirements about frequency, content and methodology for training and assessment are listed (ASI 31- Airside Driving). Both practical and theoretical training and testing are required, while frequency of retraining is based on the type of license provided and varies from annual to triannual.

Even small airports have incorporated in their AOM basic training principles. Doncaster Sheffield Airport in chapter 18 of the Aerodrome Manual (Doncaster Sheffield Airport , 2018) provides absolute minimum training requirements for all staff while it requires the compilation of a training package for each member of the staff based on their specific role. Recurrent training is provided annually while assessments are required every two years. The AOM also refers to the provision of online training sessions which cover mandatory training subjects.

In other countries, where the National Aviation Authorities did not issue specific guidance publications for the implementation of training requirements arising from Regulation (EU) No 139/2014, airports proceeded to develop and incorporate relevant procedures in their documentation. Leonardo da Vinci–Fiumicino Airport in Part B Section 3 of the AOM includes training requirements addressed to both third parties and the airport operator's employees (Aeroporto Leonardo Da Vinci - Fiumicino, 2020). The document registers requirements for internal and external training and includes detailed training syllabi for the most important training subjects, including Safety Management System, Airside Safety, Standard Training for Companies operating in Airside, Airport Safety and Airside Driving. For each training subject, the duration and the requirements for recurrent training is provided. It is also documented which training can be delivered online, in a classroom or on the job and a requirement for written, oral or on the job exam sessions is included. Also, qualifications for external and internal instructors are introduced while proficiency checks to ensure competence are incorporated in the procedure for recurrent trainings.

Malpensa Airport in Milan also registered detailed requirements for training for third parties in paragraph 13.3.2 of the *Airport Regulations* publication (SEA Aeroporti di Milano, 2019). The requirements cover subjects such as *Aircraft Handling and Loading*,

Aircraft Ground Movement and Dangerous Goods. As in the case of other airports, a mandatory generic *Airside Safety* basic course is provided to all personnel operating in the movement area of the airport. The course is provided in classroom or via e-learning and a recurrent training is required every five years. The modules of the course are provided in detail, something that also applies for the *Airport Driving* training which includes extensive information about the content of the training, how it's provided, the exams methodology (computerized test and oral examination) and duration of the training's validity (3-5 years depending on the type of driving license). It should be noted though that the airport's documentation does not include information about more specialized trainings required by EASA such as Movement Area Inspection and Wildlife Management trainings.

Despite the efforts by some States and airports, certain European National Aviation Authorities have not proceeded to incorporate the legislation in their own documentation. For example, the latest Irish Aviation Authority publication related to both the *Aerodrome Licensing Requirements* (Safety Regulation Division, 2020)) and the *Aerodrome Manual* (Safety Regulation Division, 2020)) were issued in December 2009. Other National Aviation Authorities, such as the Directorate of Civil Aviation of Luxembourg, have issued documents which try to summarize the content of Regulation (EU) 139/2014. In this effort though, important requirements of the regulation, such as the obligation to provide adequate training to unescorted persons operating on the movement area or other operational areas of the aerodrome, have been omitted (Direction de l'Aviation Civile, 2017).

In Cyprus, the local Civil Aviation Department was late to act in accordance with the provisions of the European Regulations. Both Larnaka and Pafos Airports were certified in May 2018 (Department of Civil Aviation, 2018) while the issue of the training was left as a pending item that would be reviewed during the audit oversight cycles. Specifically, the relevant report (Hadjiyasemis, Larnaka and Pafos Aerodromes Certification Process EU 139/2014 / ADR.OR.D.017 Training and Proficiency Check Programmes , 2018) stated that at the time of the audit no evidence was found to indicate that the aerodrome operator had established and implemented a training programme for personnel involved in the operation, maintenance and management of the aerodrome. Also, it noted that there was no process for personnel to demonstrate their capabilities in the performance

of their assigned duties through proficiency checks at adequate intervals to ensure continued competence and that there was no procedure to ensure that unescorted persons operating on the movement area or other operational areas of the aerodrome are adequately trained.

The findings were connected to paragraph ADR.OR.D.017 of Regulation (EU) No 139/2014 and it was agreed that they would be resolved with the compilation and issue of a training manual that would include all training requirements for personnel of the aerodrome operator (Miltiadous, 2018). The manual was issued in September 2019 (Hermes Airports Ltd, 2019) and it consisted of an analysis of duties of operational and maintenance/technical personnel which were correlated with specific training subjects. Despite the fact though that twenty three training modules were registered, only seven were described in the manual. These trainings (Basic Safety Management System, Safety Management System, Emergency Response and Preparedness Wildlife Control Airside Vehicle Program Movement Area Inspections, Annex 14) were presented with corresponding content, frequency, duration, methodology and prerequisites but there were based on the best practices applied before the introduction of the European regulations. It was agreed that Basic Safety Management System training course would cover the legislative obligation of Hermes Airports to establish and implement a training programme for personnel involved in the operation, maintenance and management of the aerodrome as well as all unescorted persons operating on the movement area or other operational areas. The training manual, which did not include any information about proficiency checks, was approved by the Department of Civil Aviation (Hadjiyasemis, Larnaca and Pafos Aerodromes Oversight EU 139/2014 / ADR.OR. D017 Training and Proficiency Check Programmes, 2019).

2.3 Methodology of Training

While article *ADR.OR.D.017 Training and proficiency check Programmes* of Regulation (EU) No 139/2014 refers generically to the obligation of the aerodrome operator to implement a safety training program for personnel involved in the operation, rescue and firefighting, maintenance and management of the aerodrome and ensure that unescorted persons operating on the movement area or other operational areas of the aerodrome are adequately trained, no specifics are included in the document that would define the various aspects of the aforementioned program. *Easy Access Rules for Aerodromes*

(Regulation (EU) No 139/2014) (European Aviation Safety Agency, 2019) which provides acceptable means of compliance (AMC) and guidance material (GM) for implementing the regulations provide more information in paragraph AMC1 ADR.OR.D.017. It requires a process to identify training standards, including syllabi, and frequency for each type of training and area of activity of employees, including for instructors and assessors. Training is required to be distinguished in initial job-specific training, on-the-job training and recurrent training. Each training subject must include training contents and syllabi as well as a validation process that measures the effectiveness of the training.

With regard to frequency, in paragraph GM1 ADR.OR.D.017(a);(b) it is recommended that the initial training is valid for a period of twelve months and complete recurrent training to be provided at intervals not exceeding twelve months. In the same paragraph, the term *Refresher Training* is introduced for personnel who has not performed any duties for a significant period before the expiry date of its last training. GM2 ADR.OR.D.017(a);(b) lists practical demonstration, computer-based assessment and oral or written tests as acceptable methods for checking of the trainees while GM1 ADR.OR.D.017(c) states that proficiency checks should be conducted by nominated assessors in intervals not exceeding twenty-four months. It must be noted that although Acceptable Means of Compliance are guidelines that must be implemented unless equivalent or alternative procedures accepted by the Department of Civil Aviation are applied, Guidance Material (GM) is non-binding material developed by EASA (European Aviation Safety Agency, 2019) and airports are not obliged to apply it unless it is incorporated in national legislation.

The same document provides additional information for trainings that must be provided for specific job positions. *ADR.OPS.B.010 Rescue and firefighting services* requires the establishment of a training programme for persons involved in rescue and firefighting services of the aerodrome. GM1 ADR.OPS.B.010(a)(3) and AMC1 ADR.OPS.B.010(b);(c) provide minimum requirements for the content of the training, with participation in live fire drills commensurate with the conditions of the airport and training in human performance, including team coordination, being required subjects. AMC2 ADR.OPS.B.015 requires that personnel conducting movement area inspections receive training (as a minimum requirement) in eight subjects with some of them (Aerodrome Emergency, Aerodrome Driving Rules, Procedures of Radiotelephony, Aerodrome

Familiarization) being required elements of other trainings. Such trainings are the Wildlife Control, whose content is documented thoroughly in GM3 ADR.OPS.B.020 and the Operation of Vehicles training, for which an extensive framework is provided in AMC1 and AMC2 ADR.OPS.B.025 as well as GM1 ADR.OPS.B.025 (European Aviation Safety Agency, 2019).

Almost identical references can be found in ICAO documentation relevant to trainings and aerodromes. The same principles for training of personnel involved in rescue and firefighting services are included in ICAO *Annex 14 Aerodromes Volume I* (International Civil Aviation Organization, 2016) and *Airport Services Manual Part 7* (International Civil Aviation Organization, 1991). Similarly, the same requirements for Wildlife Control training are contained in *Airport Services Manual Part 3* (International Civil Aviation Organization, 2012) while the Operation of Vehicles training prescribed by EASA is identical to the syllabus recommended by ICAO in the *Manual on the Prevention of Runway Incursions* (International Civil Aviation Organization, 2007).

Other ICAO documents, addressing the issue of training in the aviation sector in general, include more guidelines for the methodology of training. Useful information regarding training methodology is included in ICAO Human Factors Training Manual DOC 9683. The manual identifies lectures, discussions, on-the-job, practical, and computer-based training as acceptable methods for providing training (International Civil Aviation Organization, 1998). It also acknowledges the importance of implementing a systemic approach to training for financial reasons as it can enhance safety but also reduce training and operation costs.

PANS-AERODROMES DOC 9981 (International Civil Aviation Organization, 2018) connects training objectives with the desired competence and recommends that training should include content and frequency for each technical subject that can be delivered via theoretical training, practical or on-the-job training. The same document requires for each training testing and, in subsequent cycles, demonstrating competence or recurrent theoretical and/or practical training. It is the first document that explicitly allows for competence checks to be used as an alternative to recurrent training with checks that can be completed during day-to-day activities by having a competent individual accompany and assess the staff member on tasks relevant to the training. Additionally, PANS-AERODROMES DOC 9981 includes supplementary training syllabi that complement

training modules that are referenced by EASA regulations. These trainings refer to the inspections of the movement area, wildlife hazard management, airside driving training, foreign object debris (FOD) control, apron safety, runway safety and work in progress (WIP). The latest four subjects clearly refer to airport safety management and could provide the content for the basic training requirements for personnel operating unescorted in the movement area of the airport as well as to operational personnel.

Airports Council International (ACI) documentation is more specific about aerodrome operations. The *Airside Safety Handbook* (Airports Council International, 2010) recommends considering theoretical trainings and practical training (with emphasis on demonstration) while testing should aim to assess understanding (when written or oral) and ability (when practical). It recommends checking competency by a qualified individual who will assess staff during daily activities. At the same time, it recommends refresher trainings without proposing specific intervals as it acknowledges that retraining frequency is related to the frequency and importance of the task. The document also stresses the importance of checklists / check sheets both for practical trainings as well as for competency tests. An example of a competency checklist is provided in Annex A of the document. The usefulness of checklists as means to facilitate and record practical testing and proficiency checks, especially when assessing skills and compliance to procedures, is also stressed by other relevant documents and studies (International Civil Aviation Organization, 1998) and (Bellotti, 2019).

The selection of the suitable training method affects the effectiveness of the training and should be based on the desired result/objectives (Bell, Tannenbaum, Ford, Noe, & Kraiger, 2017). It is understandable, though, that the effectiveness of the training method, is only one parameter for the design of the training program as time and cost are also elements that are being considered (Cocuľová, 2017). Specifically, for adult trainees, presentational methods such as lectures/classrooms and non-interactive e-learning are less costly and more widely used while *hands-on methods* (on-the-job training, simulations, case studies, role playing) cost more and are less frequently used (Postolov, Pulevska Ivanovska, & Sopova, 2016). Despite that, it is recognized that e-learning provides new educational opportunities especially when combined with other training methods (Antwi, Tampah-Naah, & Buame, 2019)). It is noted though that on-the-job training is preferred for initial/induction trainings of new recruits. It is also supported

that hands-on methods such as workshops, role-playing and case studies are more frequently used for training managers and supervisors even when classroom training is the prevalent training method of an organization ((Hagos, 2018).

Additionally, regarding assessing the efficiency of the training, the evaluation must take into consideration not only the knowledge gained but also the subsequent performance of the employee (Bell, Tannenbaum, Ford, Noe, & Kraiger, 2017). There must be a process that will identify the need for refresher courses consistently and at intervals that will minimize the risks of hazardous reduction in competency (Antwi, Tampah-Naah, & Buame, 2019). Although different evaluation techniques may be used, in all cases they must identify areas that must and can be improved via training. While assessments may be performed via tests (written or on-the-job) knowledge, skills and competency can be accessed via the performance evaluation system of a company (such as the 360-degree feedback system) and the quality of the daily tasks performed by the employee (Hagos, 2018).

2.4 Conclusions

The review of the literature shows that despite the declared target of EASA to harmonize regulations at European airports, training of personnel remains an area where deviations about training subjects and methodology are still allowed. This is evident in the practices implemented by airports in Europe as well as in the lack of European and, consequently, national requirements regarding training content, frequency, methodology as well as testing practices and competency checks.

Commission Regulation (EU) No 139/2014 and *Easy Access Rules for Aerodromes* require from the airport operator to ensure that unescorted persons operating on the movement area or other operational areas of the aerodrome are adequately trained. This training must cover a big number of employees (approximately six thousand at Larnaka and Pafos Airports). As the airport operator is directly responsible for the program, it is justified that most airports implemented a basic training program based on safety management elements which also include modules relevant to airport safety as outlined in PANS-AERODROMES DOC 9981 (International Civil Aviation Organization, 2018).

Things are more complicated with the requirement for establishing a safety training programme for personnel involved in the operation, rescue and firefighting, maintenance

and management of the aerodrome. While the training syllabus for rescue and firefighting personnel is well defined by EASA and can be complemented with material issues by other aviation organizations, for the other three categories of employees the requirements are not defined and the content less regulated. GM1 ADR.OR.D.005(b)(8) provides the only source of information regarding training of managerial personnel in the form of safety training for supervisors, managers, senior managers, and the Accountable Manager (European Aviation Safety Agency, 2019).

For maintenance personnel, while no specific technical or maintenance training information is provided, the certification specifications as included in the *Easy Access Rules for Aerodromes*, provide in essence all the required knowledge regarding the airport design principles, maintenance requirements and equipment/facilities characteristics (European Aviation Safety Agency, 2019). Training of maintenance personnel must include the required safety training and, depending on their duties, Airside Driving and Movement Area Inspections training. It should be noted that the personnel of the airport operator involved in maintenance consist of a small number of personnel, usually with an engineering background, who direct and oversee works perform by third parties (subcontracted) companies, although all airport personnel receive a basic Technical training.

Training of operational personnel will include as a requirement the safety training as included in GM1 ADR.OR.D.005(b)(8). Assuming that every operations employee must be able to perform all operational duties, a complete training must include the Airside Driving, Movement Area Inspections and Wildlife Control training as prescribed by EASA. The additional training subjects included in PANS-AERODROMES DOC 9981, namely foreign object debris (FOD) control, apron safety, runway safety and work in progress (WIP), will be included in the training requirements in order to cover the requirement of EASA for operational related training (European Aviation Safety Agency, 2019).

It must be noted that some training modules are included in more than one training subjects. For example, aerodrome driving rules and procedures of radiotelephony are required for both Movement Area Inspections and Airside Driving trainings. In order to conserve resources, a training plan must be organized in a way that will prevent repetition by structuring and sequencing trainings efficiently.

Based on the above, a training program that complies with the requirements of Commission Regulation (EU) No 139/2014 is presented in Appendix B of this document.

With regard to the frequency of the trainings, no specific interval is provided by EASA documentation (the twelve months interval is a recommendation). The result is depicted in the practices implemented by various airports, which have adopted various practices (with intervals varying from one to five years). As the literature indicates that the frequency can be defined based on the frequency and importance of the task (training subject), feedback from managerial and front-line staff as well as personnel directly involved in the management of trainings can provide useful information for defining the frequency of each training subject. In the same way, the feedback will be utilized to establish if for any training subjects, competency checks at specific intervals can effectively replace recurrent training.

Finally, the same process can be utilized to formulate the methodology that will be used to deliver the training program. Literature differentiates among theoretical and practical training while naming classroom (*lecture discussion*) computer-based, practical and on-the-job as acceptable training methods. Additionally, and with regards to measuring training efficiency, the options of utilizing several testing methods will be explored.

CHAPTER 3

METHODOLOGY

3.1 Methodology

In order to answer the first research question, the qualitative approach was applied. Data were collected primarily from EASA documentation as the objective was to register the training subjects that Commission Regulation (EU) No 139/2014 obligates airport operators to provide to their staff and to personnel of other agencies operating in the airside areas of the airport. All relevant references are presented in Appendix A while the required content of the trainings is included in Appendix B. It should be noted that in order to compile the training content, ICAO publications was also utilized especially for issues relevant to Operations, such as the Operation of Vehicles and Operational training. The inclusion of data from ICAO documents and manuals enabled the completion of the training content with material published by an internationally recognized regulatory agency for those subjects for which EASA did not provide adequate guidance or material.

With regard to the other three research questions, a qualitative approach was adopted. As there were no regulatory requirements regarding the frequency, training methodology and methods of assessing the competency of trainees, the literature review provided information regarding methods and practices already implemented by aerodrome operators or considered accepted by regulatory agencies (ICAO and EASA). The data were used in order to conduct a survey via questionnaires that were distributed to airport personnel who in turn provided feedback on the aforementioned issues as well as to how important they considered each training subject. The use of questionnaires gave the opportunity to collect data from a considerable number of airport employees who, as aviation professionals, are familiar with the training subjects and the methodology for delivering and evaluating the training subjects. It also ensured that valid and generalizable results could be exported that would enable answers to the research questions. These answers would cover all functions of the airport's operational and safety

management system and as such, their applicability would be wide and the level of confidence high.

3.2 Survey - Questionnaire

For the conduction of the survey, a questionnaire was compiled in order to collect feedback from airport personnel regarding the research questions. The first seven questions aimed to collect information regarding demographical and professional data of the targeted group. These data referred to the age, sex and level of formal education of the participants. The questions also collected information regarding the area of function of the participants in the airport, their involvement in the management/administration of training, and their role within their agency/organization.

Question 8 asked participants to evaluate the importance of the training subjects assessed on a 4-point Absolute Category Rating scale from 1 (Not Important) to 4 (Very Important). The following eight questions collected data relevant to the three research questions regarding the training methods to be applied for each training (initial or recurrent), the preferred competency evaluation or assessment method regarding each training and the training frequency. A final question that asked participants to evaluate the overall effectiveness of training provided by their organization was included. Table 1 presents the correlation between the research questions/objectives and the queries included in the questionnaire.

Research Question	Survey Questions
2. Which training subjects are considered more important and what the frequency of recurrent training should be?	8. Rate the importance of the following training subjects for the overall management system of the airport.
	11. Indicate the recurrent training frequency that you consider adequate for the following training subjects.
	13. Indicate the recurrent training frequency that you consider adequate for the following training subjects provided that competency checks by assessors are conducted annually.

3. What is the preferred training methodology?	9. Indicate which training method you consider appropriate for initial delivering of the following training subjects.
	14. Indicate which training method you consider appropriate for recurrent delivery of the following training subjects.
4. How should the efficiency of the training in terms of ensuring the competency of trainees be measured or assessed?	10. Indicate which method you consider appropriate for evaluation of the trainees' competency following initial training.
	12. Indicate the trainings for which competency checks conducted annually by assessors can replace scheduled recurrent trainings.
	15. Indicate which method you consider appropriate for evaluation of the trainees' competency following recurrent training.
	16. Indicate which method you consider appropriate for evaluation by assessors of personnel' s competency.

Table 1. Correlation Between the Research Questions/Objectives and the Queries Included in the Questionnaire.

It should be noted that for questions 8, 11 and 13 regarding the importance of the training subjects and the frequency of trainings, participants could choose only one answer. For the rest of the questions, dealing with training and testing / competency assessments methods, participants could choose more than one answers as both the current practice at airports as well as the literature review indicate that more than one method can be used to provide and assess the efficiency of trainings. The methods included in the questionnaire as well as the options provided for choosing the recurrent frequency of training were based on practices included in literature while the importance of training subjects and the overall effectiveness of training provided by organizations was assessed on a 4-point Absolute Category Rating scale from 1 (Poor) to 4 (Excellent). Answers to questions 8 to 16 were provided separately for each required training subject in order to record possible differences in methodology and frequency. The questionnaire is presented in Appendix C of this document.

3.3 Population and Sample

The population of the survey was the personnel of Larnaca and Pafos Airports who is involved in the operation, maintenance and management of the aerodrome and may operate unescorted in the movement area. The lists compiled by the airport operator contained 4234 persons allowed to operate in the movement area. Sorting the lists according to the functions of the employees resulted in a final number of 3568 persons whose function was relevant to the operations, maintenance and management of the airports.

The questionnaire was disseminated to a sample of 200 of the aforementioned employees. A non-probability sampling method was applied as the selection was based on convenience and the ability of personnel to answer the questionnaire in English. Also, priority was given to personnel which is involved in the management and administration due to their work background and experience. Out of the 200 employees who received the questionnaire, 146 completed and returned it (a response rate of 73%). The demographics of the sample are presented in the graphs below:

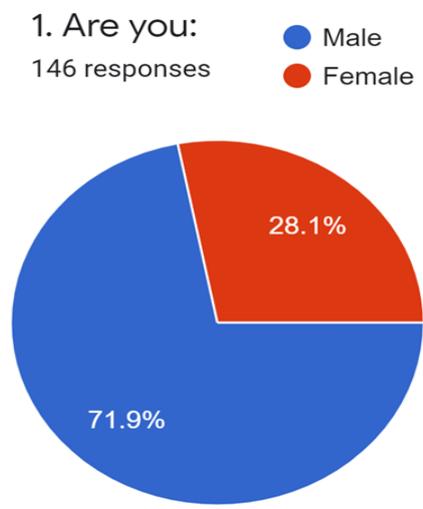


Figure 1. Sex

Out of 146 responders, 105 (71.9%) were males and 41 (28.1%) females. This is in line with the general tendency in airside operations where women are underrepresented.

2. What is your age?
146 responses

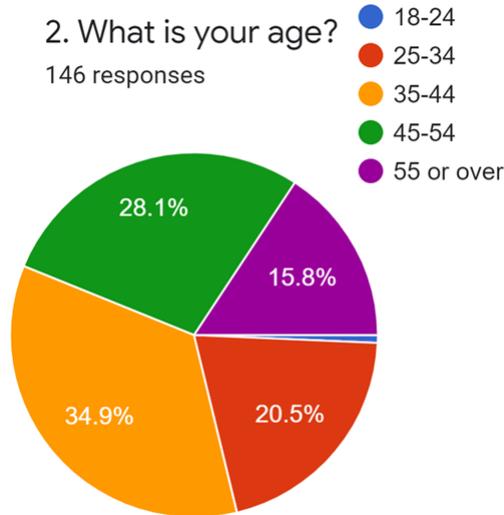


Figure 2. Age

Only one responder was under 25 years old. A relative majority of 51 persons (34.9%) were in the range of 35-44 years old, 41 (28.1%) were between 45-54 years old and 30 (20.5%) were between 25-34 years old. Finally, 23 (15.8%) responders were over 55 years old.

3. What is the highest level of formal education you have completed?
146 responses

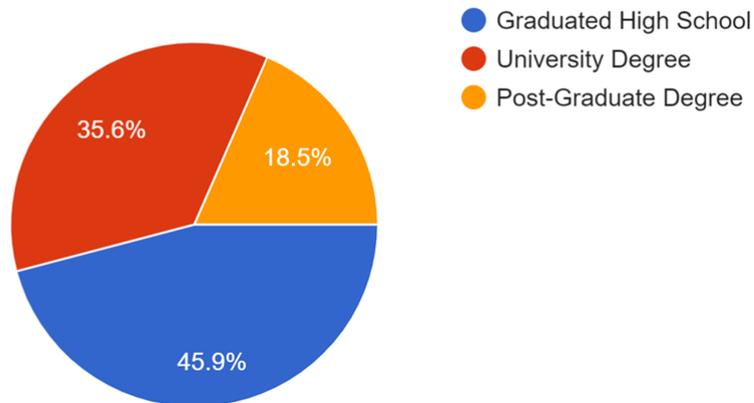


Figure 3. Education Level

Out of 146 responders, 67 (45.9%) were high school graduates while 52 (35.6%) were university graduates. Finally, 27 persons (18.5%) were holders of post-graduate degree.

4. What is your primary function at the airport?

146 responses

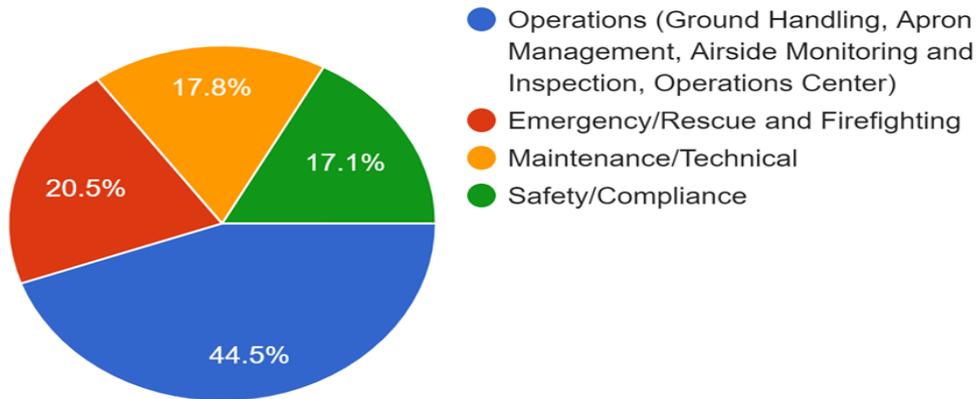


Figure 4. Function at the Airport

Operations was the function where 65 responders (44.5%) were occupied. Emergency/Rescue and Firefighting employees provided 30 responses (20.5%), followed by Maintenance/Technical personnel with 26 responses (17.8%) and Safety/Compliance personnel with 25 responses (17.1%).

5. What is your role within your agency/organization?

146 responses

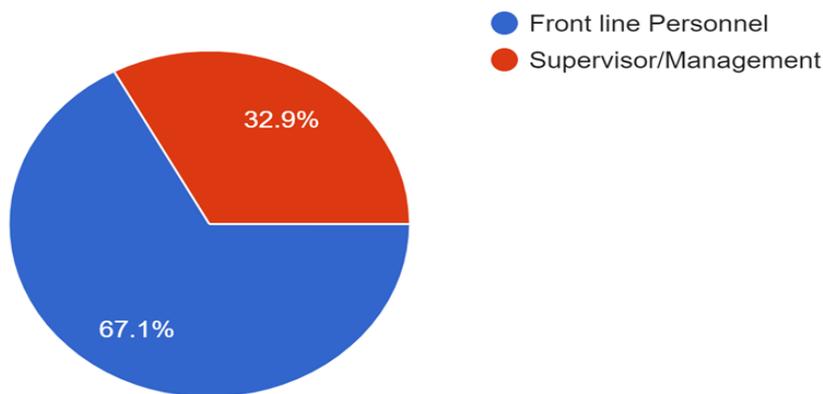


Figure 5. Role in the Organization

Front line personnel constituted the majority of the participants to the survey with 98 responses (67.1%) while 48 answers (32.9%) were given by Supervisory and Managerial personnel.

6. Are you involved in the management/administration of training?

146 responses

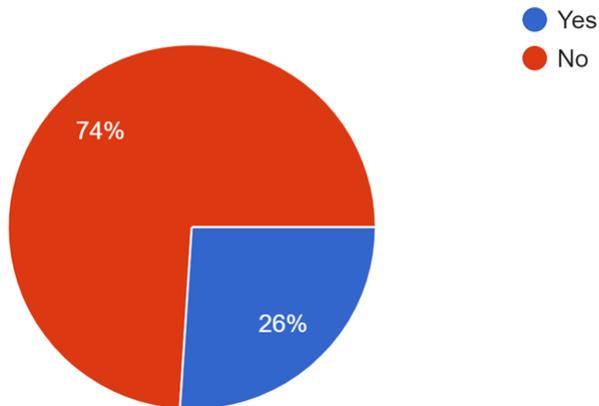
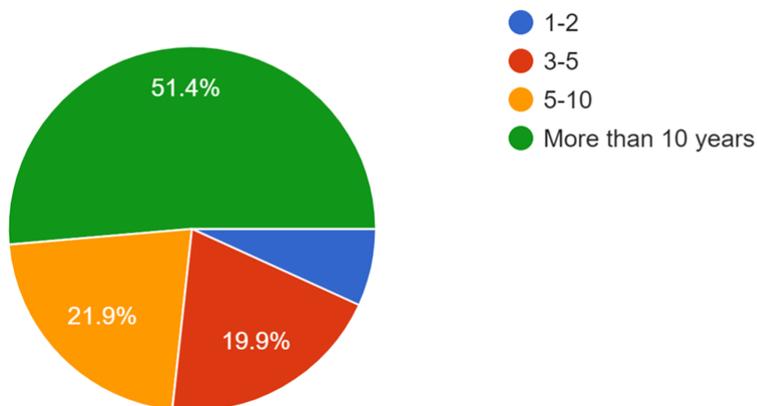


Figure 6. Involvement in Management/Administration of Training

As expected, a majority of 108 participants (74%) were not involved in the management or administration of trainings; 38 responses (26%) were received by personnel who was participating in the overall management of training processes.

7. How many years of experience in your field do you have?

146 responses



A majority of 75 participants (51.4%) had more than 10 years of experience in their field, 32 (21.9%) had 5-10 years of experience, 29 had 3-5 years of experience and finally, 10 participants had 1-2 years of experience.

1.4 Survey Process

The questionnaire was finalized and disseminated to participants by the 11th of September 2020. Initially, the questionnaire was sent electronically via Google Forms

either directly to the email account of the responders or to the centralized email address of the relevant agencies/companies. Participants were asked to fill the questionnaire and return it electronically by the 26th of September 2020. It was clarified to all participants that the survey was conducted independently and not on behalf of their company.

Follow up communication was required both for answering clarifications regarding the content and the purpose of the questionnaire as well as for the provision of assurances that all answers would be confidential, and no personal data were collected. A week after the dissemination of the questionnaires, following requests from the Airports' Rescue and Firefighting personnel as well as Station Managers of Ground Handling Companies, hardcopies of the questionnaire were disseminated by the surveyor to front line personnel who filled them on site and returned them by hand. Six such sessions were organized at Larnaka Airport and two at Pafos Airport during September while an extension until the end of September was provided to participants who would submit the questionnaires electronically. The process was completed by the end of the month and the data were recorded in an excel sheet to be processed statistically and thematically.

It must be noted that in order to ensure the validity and credibility of the survey results, it was stressed to all participants that they should provide answers according to their own personal opinion and experience and not according to the training policy implemented by their company or agency. There were a few requests for providing guidelines relevant to the answers, but they were rejected. Although a list of the recipients of the questionnaire was compiled, all answers were submitted anonymously, and no personal data were collected.

Despite the above, some hindrances were observed. There was a hesitation to complete the questionnaire, especially electronically. This hesitation almost exclusively came from personnel of governmental agencies, namely the Rescue and Fire Fighting Service and the Department of Civil Aviation. Despite assurances that the responses were deidentified, it is possible that a percentage of the answers might have been influenced by this hesitation. Another concern was the perceived preconceptions and bias that participants might have regarding specific training subjects or training methods. This will be discussed further in Chapter 4 of this documents.

CHAPTER 4

RESULTS

4.1 Importance of Training Subjects

Question 8 asked participants to evaluate the importance of the training subjects assessed on a 4-point Absolute Category Rating scale from 1 (Not Important) to 4 (Very Important). The results are presented in Table 2.

	1	2	3	4	MEAN	S.D
8. Rate the importance of the following training subjects for the overall management system of the airport	%	%	%	%		
[Rescue and firefighting]	0.00	9.59	38.36	52.05	3.42	0.66
[Wildlife control training]	2.74	26.03	39.73	31.51	3.00	0.83
[Maintenance - Technical training (EASA technical requirements)]	0.00	6.85	40.41	52.74	3.46	0.62
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]	0.00	0.00	50.00	50.00	3.50	0.50
[Monitoring and inspection of movement area and related facilities]	1.37	21.23	49.32	28.08	3.04	0.74
[Operation of vehicles - apron]	0.00	5.48	55.48	39.04	3.34	0.58
[Operation of vehicles – maneuvering area]	0.00	10.96	40.41	48.63	3.38	0.68
[Radiotelephony]	3.42	18.49	42.47	35.62	3.10	0.82
[Safety Management System]	2.05	4.79	39.04	54.11	3.45	0.69
[Basic Airside Safety Training]	6.85	32.88	37.67	22.60	2.76	0.88

Table 2. Importance of Training Subjects

All ten training subjects included in the survey are considered by the participants as important. Operational training has the higher mean score at 3.5 and it is noteworthy than all responders rated it as Very Important or Important. This is closely followed by

Maintenance/Training, Safety Management System and Rescue and Firefighting trainings while the Operation of Vehicles in the Apron and the Maneuvering Area are evaluated slightly lower. Radiotelephony, Monitoring and Inspection and Wildlife Control training are rated even lower while the Basic Airside Safety training is considered the least important training with a mean of 2.76. All trainings were scored high with the mean being higher than 2.5 while the standard deviation was lower than 1.

The fact that the Basic Airside Safety was considered the least important training was expectable as it is a subject which, until the adoption of Commission Regulation (EU) No 139/2014, was provided independently by most agencies to their personnel as an induction training. The new regulatory framework forced companies to implement a more generic training syllabus developed by the Airport Operator and to provide it recurrently to experienced personnel already well familiar with its content. This the case at Larnaka and Pafos Airports but also at major European Airports such as Manchester and Gatwick as literature review has indicated. The low score of Radiotelephony, Monitoring and Inspection and Wildlife Control training can also be understood as a result deriving from the fact that all personnel is trained on these subjects but only a small percentage implement it on a frequent basis.

On the contrary, Operational training, which is considered as the most important, includes a wide variety of specialized subjects which airport employees deal with on a frequent basis. Safety Management System and Maintenance/Technical trainings are secondary subjects for most employees, but they interface with almost all operational aspects. Rescue and Firefighting training, although it is rarely needed to be practically implemented, is considered important due to the implications that the lack of that training would have in the case of accidents and incidents.

Conclusively, although all training subjects are rated relatively high on the importance scale, some are considered more important than others. This might be attributed to the content of the training and the importance it has to the performance of the employees' duties. In subsequent sections, the importance attributed to the trainings will be correlated with the answers to the other research questions.

4.2 Acceptability of Annual Competency Checks as Substitute for Recurrent Training and Testing

In question 12, participants were asked if competency checks conducted annually by assessors can replace scheduled recurrent training. The results are presented in Table 3.

12. Indicate the training subjects for which competency checks conducted annually by assessors can replace scheduled recurrent training:	%
[Rescue and firefighting]	56.85
[Wildlife control training]	86.99
[Maintenance - Technical training (EASA technical requirements)]	72.60
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)]	0.00
[Monitoring and inspection of movement area and related facilities]	86.99
[Operation of vehicles - apron]	88.36
[Operation of vehicles - manoeuvring area]	0.00
[Radiotelephony]	89.04
[Safety Management System]	74.66
[Basic Airside Safety Training]	92.47

Table 3. Acceptability of Annual Competency Checks as Substitute for Recurrent Training and Testing

Basic Airside Safety training, which was assessed as the least important training, is considered by 92.5% of responders as the subject for which a competency assessment can replace recurrent training. As stated before, this is probably due to the generic content of the training and the simplicity of the information contained in the syllabus. On the contrary, no responder stated that the Operational recurrent training, which was considered as the most important, could be replaced by competency checks. The same applies for the Operation of Vehicles - maneuvering area training which was the fifth most important training. The fact that responders consider recurrent training as necessary, is probably related to the fact that driving in the maneuvering area is a duty that is performed infrequently by most employees, while it is also hazardous as it involves driving in the area where aircraft land, take off and taxi.

Conclusively, a significant majority of responders agree, with percentages ranging from 92.5% to 72.6%, that the recurrent training for most training subjects can be replaced by annual competency checks. The exception is the Operational and the Operation of Vehicles in the maneuvering area trainings for which not a single participant agreed that

annual competency checks can substitute training and testing. In addition, opinions are almost divided regarding the Fire Fighting training with 56.8% of the responders agreeing with the statement of the question. It is noteworthy that this percentage is higher (66.6%) amongst the responders whose function is Emergency/Rescue and Firefighting.

This is in line with practices already noted during the review of the literature. Despite the absence of a detailed regulatory framework or even guidelines regarding competency checks, airports (Gatwick Airport for example) have incorporated competency checks in their training process. The *ACI Airside Safety Handbook* also recommends checking competency by a qualified individual who will assess staff while also including an example of a competency checklist.

4.3 Recurrent Training Frequency

Question 11 asked the participants to state the recurrent training frequency that they consider adequate for each training subject. Based on the practices implemented at Larnaka and Pafos Airports, other European airports and the literature review, five options (from one up to five years) were provided to responders who may choose only one option per training subject. Table 4 presents the answers of the responders:

	1	2	3	4	5	MEAN	S.D
11. Indicate the recurrent training frequency that you consider adequate for the following training subjects:	%	%	%	%	%		
[Rescue and firefighting]	67.12	32.19	0.68	0.00	0.00	1.34	0.49
[Wildlife control training]	17.81	48.63	30.82	2.05	0.68	2.19	0.77
[Maintenance - Technical training (EASA technical requirements)]	34.25	43.84	17.81	3.42	0.68	1.92	0.85
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)]	62.33	37.67	0.00	0.00	0.00	1.38	0.49
[Monitoring and inspection of movement area and related facilities]	21.23	41.78	30.82	4.11	2.05	2.24	0.90
[Operation of vehicles - apron]	17.12	43.84	35.62	2.74	0.68	2.26	0.80
[Operation of vehicles - manoeuvring area]	35.62	48.63	14.38	0.68	0.68	1.82	0.75
[Radiotelephony]	15.07	46.58	32.88	4.11	1.37	2.30	0.83
[Safety Management System]	36.30	42.47	19.18	1.37	0.68	1.88	0.81
[Basic Airside Safety Training]	15.07	33.56	42.47	4.11	4.79	2.50	0.96

Table 4. Recurrent Training Frequency Considered Adequate for Each Training Subject

Most responders deem annual recurrent trainings as required for the Operational and the Rescue and Firefighting trainings (62.3% and 67.1% respectively). For the other training subjects, the plurality of responders considers biennial recurrent trainings as adequate with percentages ranging from 41.8% to 48.6%. The exception is the Basic Airside Safety Training, where the most common answer (42.5%) is the three years option. In general, considering the mean recorded for each training subject, Operational and the Rescue and Firefighting are considered the subjects for which recurrent trainings must be organized more frequently. Operation of vehicles - maneuvering area, Safety Management System and Maintenance/Technical trainings follow with means close to but below 2. All other subjects recorded means significantly higher than 2 but not higher than 2.5.

The conclusion is that airport personnel consider recurrent trainings as a necessity. They also support that training should be organized annually or every two years (or even three years in the case of the Basic Airside Safety training). It is characteristic that only a small minority of responders consider that recurrent trainings every four or five years would be adequate for maintaining competency. The highest percentage for these two choices was again recorded for the Basic Airside Safety training with 8.9 combined. As presented in Table 5, the results change when the option of annual competency assessments is presented to the participants.

	1	2	3	4	5	MEAN	S.D
13. Indicate the recurrent training frequency that you consider adequate for the following training subjects provided that competency checks by assessors are conducted annually:	%	%	%	%	%		
[Rescue and firefighting]	25.34	50.68	21.92	2.05	0.00	2.01	0.75
[Wildlife control training]	2.74	14.38	41.78	6.16	34.93	3.56	1.19
[Maintenance - Technical training (EASA technical requirements)]	8.22	32.19	38.36	6.85	14.38	2.87	1.13
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)]	17.81	50.00	28.77	2.74	0.68	2.18	0.78
[Monitoring and inspection of movement area and related facilities]	3.42	15.75	25.34	8.90	46.58	3.79	1.28
[Operation of vehicles - apron]	2.05	13.01	25.34	7.53	52.05	3.95	1.22
[Operation of vehicles - manoeuvring area]	3.42	30.82	43.15	4.11	18.49	3.03	1.11
[Radiotelephony]	3.42	14.38	21.23	7.53	53.42	3.93	1.28
[Safety Management System]	5.48	23.29	39.04	6.16	26.03	3.24	1.23
[Basic Airside Safety Training]	2.05	10.27	17.12	5.48	65.07	4.21	1.18

Table 5. Recurrent Training Frequency Provided That Competency Checks by Assessors Are Conducted Annually

For all training subjects, the recurrent training frequency considered adequate by participants is decreased considerably, even for those subjects which responders did not agree that competence checks should replace recurrent trainings. Operational and the Rescue and Firefighting trainings continue to have the lower means (2.1849 and 2.0068 respectively) indicating that participants consider these the training subjects that require more frequent recurrent trainings. The frequency though, is reduced to two years as participants obviously consider that competence checks can substitute for one year the recurrent trainings. Maintenance – Technical, Operation of vehicles in the maneuvering area and Safety Management System trainings follow with a mean ranging from 2.8699 to 3.2397, suggesting a three-year training cycle. All other trainings have means higher than 3.5 indicating that recurrent trainings every four years are considered adequate. Again, the Basic Airside Safety training has the highest mean at 4.2123.

Conclusively, the conduction of annual assessment tests seems to negate the need to provide annual recurrent trainings and even extends recurrent training cycles significantly as presented in Table 6. It should be noted that training subjects which, according to participants, should be provided more rarely show a bigger decrease to training frequency than those training which participants believed they should be conducted more frequently.

Training Subject	Recurrent training frequency considered adequate - MEAN	Recurrent training frequency when annual competency checks are conducted - MEAN	Increase/Decrease to training frequency when annual competency checks are conducted - MEAN
[Rescue and firefighting]	1.34	2.01	0.67
[Wildlife control training]	2.19	3.56	1.37
[Maintenance - Technical training (EASA technical requirements)]	1.92	2.87	0.95
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]	1.38	2.18	0.81
[Monitoring and inspection of movement area and related facilities]	2.24	3.79	1.55
[Operation of vehicles - apron]	2.26	3.95	1.68
[Operation of vehicles - maneuvering area]	1.82	3.03	1.21
[Radiotelephony]	2.30	3.93	1.63
[Safety Management System]	1.88	3.24	1.36
[Basic Airside Safety Training]	2.50	4.21	1.71

Table 6. Increase/Decrease to training frequency when annual competency checks are conducted

4.4 Correlation between Training Importance, Competence Checks and Training Frequency

The results presented in sections 4.1-4.3 lead to the conclusion that there is a correlation between the importance participants attribute to each training subject, the acceptability of annual competency checks as substitute for recurrent training and testing and the training frequency.

Importance (Mean - higher to lower)	Acceptance of competence checks (lower to higher)	Recurrent training frequency (Mean - lower to higher)	Recurrent training frequency provided that competency checks are conducted annually (Mean - lower to higher)	Increase/Decrease to training frequency when annual competency checks are conducted (Mean - lower to higher)
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]	[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]	[Rescue and firefighting]	[Rescue and firefighting]	[Rescue and firefighting]
[Maintenance - Technical training (EASA technical requirements)]	[Operation of vehicles - maneuvering area]	[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]	[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]	[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]
[Safety Management System]	[Rescue and firefighting]	[Operation of vehicles - maneuvering area]	[Maintenance - Technical training (EASA technical requirements)]	[Maintenance - Technical training (EASA technical requirements)]
[Rescue and firefighting]	[Maintenance - Technical training (EASA technical requirements)]	[Safety Management System]	[Operation of vehicles - maneuvering area]	[Operation of vehicles - maneuvering area]
[Operation of vehicles - maneuvering area]	[Safety Management System]	[Maintenance - Technical training (EASA technical requirements)]	[Safety Management System]	[Safety Management System]
[Operation of vehicles - apron]	[Wildlife control training]	[Wildlife control training]	[Wildlife control training]	[Wildlife control training]
[Radiotelephony]	[Monitoring and inspection of movement area and related facilities]	[Monitoring and inspection of movement area and related facilities]	[Monitoring and inspection of movement area and related facilities]	[Monitoring and inspection of movement area and related facilities]
[Monitoring and inspection of movement area and related facilities]	[Operation of vehicles - apron]	[Operation of vehicles - apron]	[Radiotelephony]	[Radiotelephony]
[Wildlife control training]	[Radiotelephony]	[Radiotelephony]	[Operation of vehicles - apron]	[Operation of vehicles - apron]
[Basic Airside Safety Training]	[Basic Airside Safety Training]			

Table 7. Increase/Decrease to training frequency when annual competency checks are conducted

The five training subjects which were deemed by responders as more important, were also assessed as those who require more frequent recurrent training sessions, even when the parameter of conducting competency checks annually by assessors is considered. They are also the trainings subjects which participants to the survey were less likely to agree that annual competency checks can replace recurrent trainings.

This correlation does not alter the basic conclusion extracted from the results presented above. Annual competency checks, according to participants, can replace recurrent training sessions for almost every subject included in the EASA regulations, the exemption being the Operational and the Operation of Vehicles in the maneuvering area

trainings. Even in these cases, the implementation of a systematic competence check scheme can decrease the frequency of recurrent trainings. In any case though, managers should take into consideration the importance attributed to each training and customize the training plan to the needs and expectations of the trainees and the objectives and scope of the trainings.

4.5 Training Methods

Question 9 asked the participants to choose the training methods which they consider appropriate for conducting the initial training to employees. Four training methods were included in the questionnaire based on the current practices at Larnaka and Pafos Airports and the guidelines provided by the relevant literature, especially documentation issued by the aviation regulatory agencies. Responders could choose more than one training methods as a combination of training methods is required, at least for some subjects (Wildlife control, Operation of vehicles, etc.). Table 4 presents the results:

9. Indicate which training method you consider appropriate for initial delivering of the following training subjects:	Classroom/Lecture	E-learning/Computer-based training	Practical Training/Demonstration	On-the-Job Training
[Rescue and firefighting]	88.36	9.59	89.73	25.34
[Wildlife control training]	55.48	30.82	52.05	43.15
[Maintenance - Technical training (EASA technical requirements)]	90.41	16.44	23.97	22.60
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)]	89.04	10.96	86.99	40.41
[Monitoring and inspection of movement area and related facilities]	48.63	20.55	34.25	53.42
[Operation of vehicles - apron]	71.23	20.55	80.82	18.49
[Operation of vehicles - manoeuvring area]	74.66	14.38	84.93	18.49
[Radiotelephony]	55.48	25.34	65.75	21.92
[Safety Management System]	89.04	13.70	12.33	6.85
[Basic Airside Safety Training]	62.33	37.67	10.27	2.05

Table 8. Appropriate training methods for initial training

For most training sessions, a clear preference is registered about the appropriate training methods with variances that allow the formation of four groups. The first group is composed by trainings subjects for which responders consider a combination of Classroom/Lecture and Practical Training/Demonstration as the appropriate training methods. The Rescue/firefighting, the Operational and the Operation of Vehicles (Apron and maneuvering area) trainings are included in this group. The other two options are

preferred by a very small percentage indicating that there are not deemed suitable as induction training methods for these subjects. The preference can be attributed to the fact that all these subjects cover a lot of new material that the trainee must comprehend by interacting with a trainer. In addition, all include practical elements such as the operation of specialized equipment and the familiarization with the layout of the airport, so the practical training/demonstration as a training method complementary to the theoretical induction in the classroom is justified. This preference is also in line with the guidelines of the regulatory documentation which includes in the proposed syllabi elements such as fuel fire drills, visual familiarization with the airport and its facilities and guiding aircraft.

Wildlife control and radiotelephony trainings can be assigned to a second group as for both subjects there is a clear preference for Classroom/Lecture and Practical Training/Demonstration as the appropriate training methods but at a lower percentage than the first group. For these group, a higher percentage of preference for the E-learning/Computer-based training and the On-the-Job Training is recorded (compared to the first group) but still lower than the other two options. It is understandable that both subjects include new knowledge but not to the same extent as the trainings included in the first group. As such, the E-learning/Computer-based training is considered an acceptable training method by a higher percentage of responders. Also, both training subjects include a practical element but not as complicated as the Rescue/firefighting or the Operational trainings.

A third group is composed by the Maintenance – Technical and the Safety Management System trainings. For these two training subjects, the Classroom/Lecture is clearly the first option of the aviation professionals who responded to the questionnaire. In this case though, all other trainings methods gather very low percentages leading to the conclusion that the preferred training method can cover the training requirements. Both training subjects are clearly theoretical and do not require practical familiarization with any aspects of the airport. As they are provided after all other trainings have been completed, airport personnel already are familiar with the airport and the basic concepts of aviation safety and airport design. This explains the low percentages for the training methods that are more suitable for practical subjects.

Finally, two training subjects stand out because the answers provided show that responders prefer a different approach with regard to the suitable training methods. On-the-Job Training is considered the most suitable method for the Monitoring and inspection of movement area and related facilities training, closely followed by Classroom/Lecture. The specific training subject has a somewhat simple training syllabus, both practical and theoretical. It is a task-oriented training and that might explain why it concentrated the highest percentage for the On-the-Job Training. On the other hand, for the Basic Airside Safety training, practical training methods concentrate the lowest percentage of preferences. Classroom/Lecture is considered as the appropriate training method by 62.3% of the responders but E-learning/ Computer - based training is preferred by 37.7%. This can be understood in the context of the theoretical syllabus of this subject. It might also though indicate a bias that employees demonstrate towards a generic and simple training that they must attend recurrently.

Overall, a general conclusion that can be extracted, is that the Classroom/Lecture training is considered a method appropriate for initial delivering of all training subjects. In most cases, the feedback is that it must be combined with a practical-oriented method, mostly the Practical Training/Demonstration although for some theoretical subjects the Classroom/Lecture is considered adequate for conducting the initial training.

The picture changes when the question refers to the appropriate training methods for conducting recurrent trainings. The results are presented in Table 9:

14. Indicate which training method you consider appropriate for recurrent delivery of the following training subjects:	Classroom/Lecture	E-learning/Computer - based training	Practical Training /Demonstration	On-the-Job Training
[Rescue and firefighting]	35.62	59.59	77.40	39.73
[Wildlife control training]	8.90	77.40	28.08	22.60
[Maintenance - Technical training (EASA technical requirements)]	29.45	73.97	35.62	32.19
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]	30.82	56.85	71.92	43.84
[Monitoring and inspection of movement area and related facilities]	8.22	58.90	21.23	34.25
[Operation of vehicles - apron]	6.85	73.29	21.92	23.29
[Operation of vehicles - maneuvering area]	7.53	72.60	30.82	17.81
[Radiotelephony]	6.85	68.49	21.92	19.86
[Safety Management System]	10.27	90.41	13.01	10.27
[Basic Airside Safety Training]	8.22	91.10	10.96	8.90

Table 9. Appropriate training methods for recurrent training

A clear relocation of preference to the E-learning/ Computer-based training from the Classroom/Lecture training method is observed. In almost every subject, electronic training is the preferred method for delivering recurrent training, with the exception being the Rescue/Firefighting and the Operational trainings. This preference is especially high in the case of the two theoretical trainings (Basic Airside Safety and Safety Management System), leading to the conclusion that as a standalone training method it can facilitate these subjects.

For the two subjects that the electronic training was not the most preferred option, Practical Training /Demonstration was deemed the most appropriate training method. The E-learning/ Computer-based training though was the second most preferred training method with more than half of the responders selecting it, leading to the conclusion that a combination of training methods must be used to cover both the theoretical and the practical aspects of the training syllabi.

In the same context and for all other trainings for which the E-learning/Computer-based training was deemed the preferable training method, a second option can be utilized to cover training elements which need a more practical approach. In all cases, the second selection of aviation professionals who participated in the survey was a practical-oriented training method which can be used complementarily. For example, the theoretical part of Maintenance/Technical training can be delivered via a computerized system while the practical elements via demonstration. In the same way, Monitoring and inspection of movement area and related facilities recurrent training can be provided electronically and compliment any additional practical training needs via On-the-Job Training.

In conclusion, for both initial and recurrent trainings, there seems to be a clear preference towards specific training methods or combinations of them. While training in a classroom in the presence of a trainer is the first choice for most initial trainings, employees prefer recurrent trainings to be delivered electronically. Apart from some theoretical subjects, the two aforementioned methods must be complimented by a practical training technique, which in most cases, is Practical training/Demonstration. An indicative plan regarding the training method that should be implemented for each training subject is presented in Table 10:

Training Subjects	Initial Training Method	Recurrent Training Method
[Rescue and firefighting]	Practical Training /Demonstration	Practical Training /Demonstration
	Classroom/Lecture	E-learning/ Computer -based training
[Wildlife control training]	Classroom/Lecture	E-learning/ Computer -based training
	Practical Training /Demonstration	Practical Training /Demonstration
[Maintenance - Technical training (EASA technical requirements)]	Classroom/Lecture	E-learning/ Computer -based training
		Practical Training /Demonstration
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]	Classroom/Lecture	Practical Training /Demonstration
	Practical Training /Demonstration	E-learning/ Computer -based training
[Monitoring and inspection of movement area and related facilities]	On-the-Job Training	E-learning/ Computer -based training
	Classroom/Lecture	On-the-Job Training
[Operation of vehicles - apron]	Practical Training /Demonstration	E-learning/ Computer -based training
	Classroom/Lecture	On-the-Job Training
[Operation of vehicles - maneuvering area]	Practical Training /Demonstration	E-learning/ Computer -based training
	Classroom/Lecture	Practical Training /Demonstration
[Radiotelephony]	Practical Training /Demonstration	E-learning/ Computer -based training
	Classroom/Lecture	Practical Training /Demonstration
[Safety Management System]	Classroom/Lecture	E-learning/ Computer -based training
[Basic Airside Safety Training]	Classroom/Lecture	E-learning/ Computer -based training

Table 10. Training methods per training subject

4.6 Testing of Trainees' Competency Following Training

Following the completion of the trainings, regulations requires testing or demonstration of competence. For the evaluation of the trainees through testing, five options were provided to the employees who participated in the survey: written test, oral test, practical demonstration, computer-based assessment, and on-the-job assessment. Responders could choose more than one method. The results of Question 10, which asked the participants to choose the methods which they consider appropriate for evaluation of the trainees' competency following initial training are presented in Table 11:

10. Indicate which method you consider appropriate for evaluation of the trainees' competency following initial training:	Written Test	Oral Test	Practical Demonstration	Computer-based assessment	On-the-Job Assessment
[Rescue and firefighting]	79.45	10.27	84.93	9.59	10.27
[Wildlife control training]	56.16	17.12	56.16	19.86	28.77
[Maintenance - Technical training (EASA technical requirements)]	85.62	4.79	21.23	15.07	11.64
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]	77.40	13.01	82.19	16.44	31.51
[Monitoring and inspection of movement area and related facilities]	42.47	8.90	39.73	9.59	43.84
[Operation of vehicles - apron]	58.90	7.53	87.67	17.81	6.16
[Operation of vehicles - manoeuvring area]	61.64	6.16	86.99	17.12	4.79
[Radiotelephony]	36.99	26.71	65.75	9.59	10.96
[Safety Management System]	80.82	3.42	11.64	19.86	5.48
[Basic Airside Safety Training]	61.64	4.79	11.64	34.25	2.05

Table 11. Evaluation method per training subject following initial training

As in the case of training methods, the answers for the Rescue/firefighting and the Operational trainings are similar. Two testing methods are clearly preferred by the responders, the written test, and the practical demonstration. Both methods have high percentages of preference, indicating that both must be used to evaluate successfully the competency of the trainees, obviously to cover both the theoretical and practical elements of the training. Two other trainings, Operation of Vehicles (Apron and maneuvering area) display a similar trend, although in this case the percentage of the written test is lower than the other two trainings. Despite that, the percentage of participants who consider the written test as an appropriate testing method is higher than 50%. Conclusively, both training methods should be utilized.

For two other training subjects, the written test is clearly the prevalent choice for testing. The Safety Management System and the Maintenance/Technical trainings are theoretical subjects, so the written test, selected by 80.8% of responders, is considered appropriate for testing purposes. All other testing methods concentrate less than 20% of preferences. Similarly, for the Basic Airside Safety training, which is a theoretical subject, the written test is preferred by most responders. This percentage though (61.6%) is lower than that recorded for the other two theoretical trainings while a relatively high preference (34.2%) for computer-based assessment is also registered. These leads to the conclusion that testing trainees through a computerized system could be explored by airport operators as an option.

In the case of Radiotelephony training, Practical Demonstration is preferred by almost two thirds of the responders (65.8%) indicating that testing through actual usage of the acquired knowledge is considered the best option. Combining the practical demonstration with written test (selected by 37% of the responders) could also be considered. Finally, the oral test which was the selection of 26.7% of the responders must be considered as redundant due to the nature of the training subject (practical demonstration requires verbal communication via radio).

The feedback for the appropriate testing method regarding the Monitoring and inspection of movement area and related facilities training is somewhat more complicated. Written test with 42.5% and On-the-Job Assessment with 43.8% concentrate the most preferences but they are closely followed by Practical Demonstration with 39.7%. The conduction of testing via two methods which are

practical oriented is consider counterproductive and could waste working time and resources. As a result, for these training subjects, testing could be performed via written test and practical demonstration which will incorporate all elements of the tasks that the employee would have been expected to perform on the job.

Finally, the direction provided by responders regarding testing for the initial Wildlife control training is clearer. A majority of responders selected written test (56.2%) and practical demonstration (56.2%) as the appropriate testing method. On-the-Job Assessment was deemed preferable by 28.8% of the airport personnel that participated in the survey. So, once more, a combination of written test and practical demonstration can facilitate testing of competence.

Overall, the results of the survey indicate that the combination of written test and practical demonstration is the preferred choice for evaluation of the trainees' competency following initial training for more subjects. This is more prevalent in the case of Rescue/firefighting and the Operational trainings while for more simple training subjects, such as the Monitoring and inspection of movement area and related facilities and the Radiotelephony trainings, the trend is recorded although in lower percentages. In the case of theoretical subjects such as the Safety Management System and the Maintenance/Technical trainings, the written test is considered sufficient to cover testing needs. The same applies for the Basic Airside Safety training, which is the only subject for which relatively high percentage of preference for computer-based assessment is recorded.

When the focus turned to the appropriate testing methods following the recurrent trainings, the preferences of the responders changed significantly. The personnel which participated in the survey again could choose one or more of the five options which were also provided for testing competence after the initial training. The results of Question 15, which asked the participants to choose the methods which they consider appropriate for evaluation of the trainees' competency following recurrent training are presented in Table 12:

15. Indicate which method you consider appropriate for evaluation of the trainees' competency following recurrent training:	Written Test	Oral Test	Practical Demonstration	Computer-based assessment	On-the-Job Assessment
[Rescue and firefighting]	17.81	5.48	86.30	41.78	17.81
[Wildlife control training]	6.16	9.59	57.53	38.36	20.55
[Maintenance - Technical training (EASA technical requirements)]	22.60	4.11	23.97	58.22	6.16
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]	15.07	4.79	75.34	39.73	31.51
[Monitoring and inspection of movement area and related facilities]	4.79	6.85	46.58	19.18	38.36
[Operation of vehicles - apron]	7.53	3.42	75.34	24.66	15.75
[Operation of vehicles - maneuvering area]	8.90	2.74	77.40	25.34	15.07
[Radiotelephony]	2.74	16.44	64.38	15.75	13.01
[Safety Management System]	9.59	6.16	7.53	80.14	4.79
[Basic Airside Safety Training]	7.53	6.16	6.16	82.88	3.42

Table 12. Evaluation method per training subject following recurrent training

Following a trend which was identified while reviewing the results of the question regarding training methods and testing following initial trainings, the answers for the Rescue/firefighting and the Operational trainings are similar. In this case though, only one testing method was clearly preferred by the responders, the practical demonstration (86.3% for Rescue/firefighting and 75.3% for Operational training). In addition, and in line with the trend recorded for the initial training, practical demonstration is the testing method preferred by a clear majority of responders for two other trainings, the Operation of Vehicles in the apron and in the maneuvering area (75.3% and 77.4% respectively). For all four of these trainings, the computer-based assessment comes as a distant second choice with preferences ranging from 41.8% to 21.7%. It can be argued that although the practical demonstration can adequately cover the testing needs of these four training subjects, the computer-based assessment can be used complementarily in order to facilitate testing of theoretical aspects, if this is deemed necessary.

The same approach can be adopted for the Radiotelephony training. For this subject, practical demonstration was also the preferred testing method of 64.4% of the responders. In this case though, there is not a clear second choice. Considering the content of the training and practicality of the tasks that the training facilitates, practical demonstration can be considered adequate to cover testing needs.

A different trend is recorded for those trainings which have been characterized as theoretical in previous chapters. The feedback regarding initial and recurrent training methods as well as testing methods following the initial training, was similar for the Safety Management System and Basic Airside Safety trainings, despite the perceived difference in importance between them. This applies also for the testing method considered appropriate for evaluation of the trainees' competency following recurrent training. For both training subjects, airport employees indicated that the computer-based assessment is the appropriate testing method with percentage over 80%. All other testing methods were selected by less than 10% of the employees.

On the contrary, the feedback regarding the testing method following recurrent Maintenance - Technical training is more complicated. Computer-based assessment is still preferred by the majority of responders but by a lower percentage (58.2%). In addition, two other testing methods, the written test and the practical demonstration are selected by a relevantly high number of responders (22.6% and 24% respectively). The practical test can be considered as a method that can be used as an alternative to the computerized tests. In the case though of the practical demonstration, trainers should consider the combination of the computer assessment with a form of practical assessment, either via a separate session or via incorporating simulated practical exercises in the computerized test.

The same trend is identified in the case of the Wildlife control training. The majority of responders (57.5%) selected the practical demonstration as the preferred testing method. A high percentage of responders though (38.4%) selected the Computer-based assessment. As result, it can be concluded that testing of trainees following recurrent training can be achieved via combining the two methods.

Finally, the feedback for the Monitoring and inspection of movement area and related facilities training regarding the appropriate testing method after the recurrent training, is once more less clear. Practical Demonstration with 46.6% and On-the-Job Assessment with 38.4% concentrate the most preferences. As in the case of the selection of the appropriate testing method after the initial training, these two methods which are practical oriented should not be combined. The suggestion is to conduct testing via practical demonstration which will incorporate all elements off the tasks that the employee would have been expected to perform on the job.

Overall, the results of the survey indicate that the practical demonstration is the preferred choice for evaluation of the trainees' competency following initial training for most subjects. For some trainings, the computer-based assessment can be used complementarily while for some theoretical subjects such as the Safety Management System, computerized tests as a standalone method can cover testing needs. An indicative plan regarding the testing method that should be implemented for each training subject is presented in Table 13:

Training Subjects	Initial Testing Method	Recurrent Testing Method
[Rescue and firefighting]	Practical Demonstration	Practical Demonstration
	Written Test	
[Wildlife control training]	Practical Demonstration	Practical Demonstration
	Written Test	Computer-based assessment
[Maintenance - Technical training (EASA technical requirements)]	Written Test	Computer-based assessment
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)]	Practical Demonstration	Practical Demonstration
	Written Test	
[Monitoring and inspection of movement area and related facilities]	Practical Demonstration	Practical Demonstration
	Written Test	
[Operation of vehicles - apron]	Practical Demonstration	Practical Demonstration
	Written Test	
[Operation of vehicles - maneuvering area]	Practical Demonstration	Practical Demonstration
	Written Test	
[Radiotelephony]	Practical Demonstration	Practical Demonstration
	Written Test	
[Safety Management System]	Written Test	Computer-based assessment
[Basic Airside Safety Training]	Written Test	Computer-based assessment

Table 13. Testing methods per training subject

4.7 Evaluation Checks Method

The option of conducting annual evaluation checks by competent assessors as substitute for recurrent training and testing was addressed in subchapter 4.2. The conclusion was that, with the exception of the Operational and the Operation of Vehicles in the maneuvering area trainings, for all other training subject's annual evaluation checks in lieu of recurrent training and testing is an acceptable practice. Question 16 addressed the issue of the method that should be applied for assessing the competency of employees. The results are presented in Table 14:

16. Indicate which method you consider appropriate for evaluation by assessors of personnel' s competency:	Written Test	Oral Test	Practical Demonstration	Computer-based assessment	On-the-Job Assessment
[Rescue and firefighting]	4.79	13.70	17.12	17.12	80.14
[Wildlife control training]	4.11	10.96	7.53	10.96	82.19
[Maintenance - Technical training (EASA technical requirements)]	10.96	8.22	2.74	28.77	67.12
[Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)]	5.48	11.64	13.70	18.49	84.93
[Monitoring and inspection of movement area and related facilities]	4.11	10.96	4.79	7.53	85.62
[Operation of vehicles - apron]	6.85	9.59	12.33	17.12	74.66
[Operation of vehicles - manoeuvring area]	6.16	9.59	14.38	17.81	72.60
[Radiotelephony]	2.74	20.55	9.59	10.96	71.92
[Safety Management System]	5.48	9.59	3.42	45.89	47.95
[Basic Airside Safety Training]	5.48	8.90	3.42	50.00	43.15

Table 14. Competency check method per training subject

The results indicate a clear preference for On-the-Job Assessment as a competence check method for the majority of training subjects. The percentage of preference ranges between 85.6% for Monitoring and inspection of movement area and related facilities training to 67.1% for Maintenance/Technical training. The Safety Management System and the Basic Airside Safety trainings are the exceptions to the rule as responses are almost evenly divided between Computer-based and On-the-Job Assessment. Both subjects are theoretical, and a computerized check could facilitate the assessment of the employees' knowledge. It would also be more cost efficient and alleviate pressure on assessors who will have to evaluate annually a big number of employees on other subjects. On-the-Job Assessment though could still be a valid option for companies which can incorporate it into their annual evaluation of the overall performance of their employees.

CHAPTER 5

CONCLUSIONS

5.1 Findings

The results of the qualitative research that addressed the first question of this study, identified ten training subjects that Commission Regulation (EU) No 139/2014 obligates airport operators to provide to their staff and to personnel of other agencies operating in the airside areas of the airport. These subjects are listed as follows:

1. Rescue and firefighting
2. Wildlife control
3. Maintenance - Technical
4. Operational
5. Monitoring and inspection of movement area and related facilities
6. Operation of vehicles - apron
7. Operation of vehicles – maneuvering area
8. Radiotelephony
9. Safety Management System
10. Basic Airside Safety Training

Two of the training subjects listed above (Maintenance - Technical and Operational) are not explicitly required by the EASA regulations, but the necessity is derived by the Acceptable Means of Compliance which refer to training requirements, personnel qualifications, and operational procedures. In addition, the Basic Airside Safety training, addresses the requirement imposed to airport operators to ensure that unescorted persons operating on the movement area are adequately trained. It is a generic training, developed by many European airports, facilitating compliance with the regulation while offering generic knowledge, which after the induction training of a new employee is probably redundant.

Finally, with regards to the first research question, it must be noted that EASA documentation does not offer adequate guidance regarding the content of a number of training subjects, especially the Maintenance – Technical and the Operational trainings. This necessitates the utilization of ICAO documentation which provides more details for compiling comprehensive training syllabi. The same applies, though to a lesser degree, for the Safety Management System, where EASA provides only generic guidance. Regarding the Radiotelephony, Operation of Vehicle and Wildlife Control training, EASA reproduces ICAO training requirements while the Monitoring and inspection of movement area and related facilities training is the only subject for which the relevant Acceptable Means of Compliance offer more detail guidance than ICAO regarding the content of the training.

The second research question addressed the importance of each training subject and the issue of training frequency. The quantitative research in the form of a survey of airport personnel covering the four professional areas receiving or administering the regulatory training subjects, indicated that although all trainings were evaluated relatively high on the importance scale, some were considered more important than others. Operational training was considered the most important with a mean score of 3.5 while eight other trainings were evaluated with a mean of 3 or higher. The exception was the Basic Airside Safety training which was considered the least important training with a mean of 2.76. The perception of the airport employees regarding the importance of each subject, can be utilized in the development of the training plan in correlation with other training elements such as frequency and training method as it provides an indication of the necessity of conducting recurrent training.

This trend became visible while reviewing the results of the questions regarding the training frequency. While airport personnel considered recurrent trainings as a necessity, annual recurrent trainings were considered appropriate for subjects which scored high on the importance scale, while for less important subjects a biennial recurrent training cycle was acceptable. The mean frequency for the recurrent training ranged from 1.3 for Rescue and Firefighting to 2.5 for the Basic Airside Safety.

For the majority of responders, annual competency checks can be incorporated in the training plan in order to replace annual recurrent trainings. This applies to all training subjects with the exception of the Operational and the Operation of Vehicles -

maneuvering area trainings. This practice, which is included as an option in the regulatory framework (albeit with few guidelines) can assist the airport operator to conserve resources and eliminate repetitive trainings. In this case, as indicated by the survey, the training frequency decreases for all training subjects and ranges from 2 for Rescue and Firefighting to 4.2 for the Basic Airside Safety.

The third research question investigated, through the survey, which training methods should be utilized for delivering each subject. The question covered separately the initial and the recurrent training. With regard to the initial training, there was a clear preference towards a combination of training methods. For six training subjects, training should be delivered via a combination of Practical Training/Demonstration and Classroom/Lecture, while for an additional subject, Classroom/Lecture training should be combined with On-the-Job training. For three theoretical subjects, Classroom/Lecture was preferred as a standalone training method.

With regard to the recurrent training, there is a clear relocation of preference to E-learning/ Computer-based training which replaces the training in a classroom in the presence of a trainer. For two theoretical trainings, it is indicated as a standalone training method, for six subjects it is combined with the Practical Training /Demonstration while for two others, is combined with On-the-Job training. In all cases, a trend is identified which clearly identifies the training methods that must be used for delivering initial and recurrent trainings.

The same applies for the last research question which investigated the methods that should be utilized for measuring or assessing the efficiency of the training in terms of ensuring the competency of trainees. In the case of initial trainings, for seven subjects, a combination of Written Test with Practical Demonstration was preferred. For the three theoretical subjects for which Classroom/Lecture was preferred as a standalone training method, the Written Test was also indicated as the preferred standalone testing method.

In the case of recurrent training, a standalone testing method is considered adequate for most training subjects. Practical Demonstration is preferred for six subjects while Computer-based assessment is the preferred methods for three other subjects. For one subject, a combination of these two testing methods is considered appropriate for evaluating the efficiency of the training. Finally, with regard to the method that should be

applied for assessing the competency of employees during annual competency checks, On-the-Job Assessment is preferred as a competence check method for the majority of training subjects. Only for one subject, the Computer-based assessment is indicated as the preferable competency check method.

5.2 Implementation of Findings

It has already been acknowledged that the new European regulations for airports, although demanding when addressing personnel requirements, do not prescribe a complete and systematic framework that will define the full list of trainings that should be provided and their frequency. It also does not define training and testing methods and how competency checks can be integrated into the airport operator's training system. This study offers the opportunity and the information required in order to enable the organization to define which training subjects must be provided in order to comply with regulatory requirements as well as how often they should take place and which training and testing methods should be utilized. Based on the results of the study, a proposed regulatory training plan is presented in Appendix D.

The implementation of the training plan, with the exception of a periodical review, will eliminate the need for an annual review by the Human Resources Department of training needs derived by aviation regulations. This will allow the company to focus its efforts on trainings that will facilitate developmental needs of the organization and the employees. At the same time, it will conserve resources in terms of personnel, time and capital that are currently utilized for conducting trainings based on previous arrangements with the Department of Civil Aviation in the context of the ICAO certification requirements.

In addition, establishing training frequencies based on real needs will be efficient in terms of time and human resources management. It will also facilitate real training needs of employees and avoid repetition of training sessions that might lead to complacency. Especially the incorporation of annual competency checks into the training system will enable the organization to link employees' competency with their annual performance evaluation and will identify individual training requirements while increasing the period between recurrent training without compromising competency levels.

Finally, the conclusion that computer-based assessment and training are preferred over written test and classroom/lecture training for conducting recurrent training sessions

and assessments provide an opportunity for the organization to digitalize the majority of its training courses. Apart from the initial investment, the transition from the classroom to an electronic environment for conducting training will be beneficial in terms of workhours utilized for training, especially for the management and supervisors who usually act as trainers. It will also alleviate pressure to allocate employees in groups for attending recurrent trainings as individual training plans can be issued that will allow personnel to attend training during periods of low traffic at the airport.

5.3 Limitations and Recommendations for Future Research

This study, despite identifying the basic elements for developing a regulatory training program for the operator of Cyprus airports, has not analyzed in depth all the elements that are required to be incorporated in the training syllabus. The proposed training syllabi that are presented in Appendix B, for some subjects, refers to the generic topics that must be included in the training without further analysis that will take into consideration the local procedures and particularities of the airports. A more detailed study that will result on the development of more detailed training syllabi is required.

The training syllabi will form the basis for the development of training material such as presentations, quizzes, audiovisual aids, tests and exercises. They will also address real training needs beyond the effort to ensure compliance by meeting regulatory requirements. It will also assist in defining the duration of each training, an element that is necessary for planning training sessions. This task will require detailed study of ICAO documentation as well as ACI publications. In addition, it must take into consideration local airport procedures that are in place, especially with regard to Operational training which is the most complex and is considered the most important training subject.

A final recommendation for future research is to combine the data extracted from the survey with interviews that will include both front line personnel as well as managers who are involved in the administration of the training system. The interviews will assist in clarifying the reasoning behind the feedback received by the survey. It will also enable the identification of elements that must be incorporated in the training syllabi and combine feedback that is compliance oriented with real training needs, as expressed by personnel who are responsible to implement the tasks, procedures and processes covered by the training sessions.

APPENDIX A

EASA TRAINING REQUIREMENTS AND RECOMMENDATIONS

A.1 COMMISSION REGULATION (EU) No 139/2014

COMMISSION REGULATION (EU) No 139/2014
Training requirements pertaining to Airport Operator
ADR.OR.D.005 Management system
(a) The aerodrome operator shall implement and maintain a management system integrating a safety management system. (b) The management system shall include: (8) a safety training programme that ensures that personnel involved in the operation, rescue and firefighting, maintenance and management of the aerodrome are trained and competent to perform the safety management system duties;
ADR.OR.D.017 Training and proficiency check programmes
(a) The aerodrome operator shall establish and implement a training programme for personnel involved in the operation, maintenance and management of the aerodrome. (b) The aerodrome operator shall ensure that unescorted persons operating on the movement area or other operational areas of the aerodrome are adequately trained. (c) The aerodrome operator shall ensure that persons referred to in points (a) and (b) above have demonstrated their capabilities in the performance of their assigned duties through proficiency check at adequate intervals to ensure continued competence.
ADR.OPS.B.010 Rescue and firefighting services

(b) The aerodrome operator shall establish and implement a training programme for persons involved in rescue and firefighting services of the aerodrome;

ADR.OPS.B.025 Operation of vehicles

The aerodrome operator shall establish and implement procedures for the training, assessment and authorisation of all drivers operating on the movement area.

A.2 Easy Access Rules for Aerodromes (Regulation (EU) No 139/2014

Acceptable means of compliance (AMC) and guidance material (GM)

AMC1 ADR.OR.D.005(b)(8) Management system

SAFETY MANAGEMENT SYSTEM TRAINING

(a) The aerodrome operator should establish a safety management system training programme for all aerodrome operations, rescue and firefighting, and maintenance personnel, including all management personnel of the aerodrome (e.g. supervisors, managers, senior managers, and the accountable manager), regardless of their level in the aerodrome operator's organisation.

(b) The amount and level of detail of safety training should be proportionate and appropriate to the individual's responsibility and involvement in the safety management system.

(c) The safety management system training programme should be developed in accordance with AMC1 ADR.OR.D.017(a);(b), and AMC1 ADR.OPS.B.010(b);(c) and be incorporated in the training programme foreseen therein.

GM1 ADR.OR.D.005(b)(8) Management system

STAFF SAFETY MANAGEMENT SYSTEM TRAINING REQUIREMENTS

(a) Operations, rescue and firefighting, and maintenance personnel

(1) Safety training should address safety responsibilities, including adherence to all operating and safety procedures, and recognising and reporting hazards;

(2) The training objectives should include the organisation's safety policy and safety management system fundamentals, and overview;

(3) The contents should include:

(i) definition of hazards;

(ii) consequences and risks;

(iii) the safety risk management process, including roles and responsibilities; and

(iv) safety reporting and the organisation's safety reporting system(s).

(b) Managers and supervisors

(1) Safety training should address safety responsibilities, including promoting the SMS and engaging operational personnel in hazard reporting;

(2) In addition to the training objectives established for operational personnel, training objectives for managers and supervisors should include a detailed knowledge of the safety process, hazard identification and safety risk management and mitigation, and change management;

(3) In addition to the contents specified for operational personnel, the training contents for supervisors and managers should include safety data analysis.

(c) Senior managers

(1) Safety training should include safety responsibilities, including compliance with European Union, national and the organisation's own safety requirements, allocation of resources, ensuring effective inter-departmental safety communication, and active promotion of the safety management system;

(2) In addition to the objectives of the two previous employee groups, safety training should include safety assurance and safety promotion, safety roles and responsibilities, and establishing acceptable levels of safety.

(d) Accountable manager

The training should provide the accountable manager with a general awareness of the organisation's safety management system, including safety management system roles

and responsibilities, safety policy and objectives, safety risk management, and safety assurance.

ADR.OR.D.017 Training and proficiency check programmes

(a) The aerodrome operator shall establish and implement a training programme for personnel involved in the operation, maintenance and management of the aerodrome.

(b) The aerodrome operator shall ensure that unescorted persons operating on the movement area or other operational areas of the aerodrome are adequately trained.

(c) The aerodrome operator shall ensure that persons referred to in points (a) and (b) above have demonstrated their capabilities in the performance of their assigned duties through proficiency check at adequate intervals to ensure continued competence.

AMC1 ADR.OR.D.017(a);(b) Training and proficiency check programmes

TRAINING PROGRAMME — GENERAL

(a) The training programme should cover all personnel:

(1) involved in the operation, maintenance, and management of the aerodrome (supervisors, managers, senior managers, and the accountable manager); and

(2) operating unescorted on the movement area, and other operational areas of the aerodrome, and which are related to the aerodrome operator, or other organisations which operate or provide services at the aerodrome,

regardless of their level in the organisation.

(b) The training of persons mentioned in paragraph (a) should be completed prior to the initial performance of their duties, or allowing them unescorted access on the movement area and other operational areas of the aerodrome, as appropriate.

(c) The training programme should include safety management system training whose level of detail should be appropriate to the individual's responsibility and involvement in the safety management system and should also include human and organisational factors; for those persons referred to in paragraph under (a)(2) employed by other organisations operating, or providing services at the aerodrome,

the safety management system training may cover only the necessary elements (e.g. relevant procedures, safety reporting system, aerodrome safety programmes, etc.).

(d) The training programme should consist of the following:

(1) a process to identify training standards, including syllabi, and frequency for each type of training and area of activity for the persons mentioned in paragraph (a), including for instructors and assessors, and track completion of required training;

(2) a validation process that measures the effectiveness of training;

(3) initial job-specific training;

(4) on-the-job training; and

(5) recurrent training.

(e) The training programme should identify training responsibilities and contain procedures:

(1) for training and checking of the trainees;

(2) to be applied in the event that personnel do not achieve or maintain the required standards.

(f) Training contents and syllabi should comply with the requirements prescribed in Part-ADR.OPS.

(g) A training file should be developed for each employee, including management, to assist in identifying and tracking employee training requirements, and verifying that personnel have received the planned training.

(h) Information related to paragraphs (d) and (e), including the identified training standards and the related syllabi and frequency, should be included in the aerodrome manual.

AMC2 ADR.OR.D.017(a);(b) Training and proficiency check programmes

TRAINING PROGRAMME — CHECKING OF TRAINEES

(a) Checking required for each training course should be accomplished by the method appropriate to the training element to be checked.

(b) Training elements that require individual practical participation may be combined with practical checks.

AMC3 ADR.OR.D.017(a);(b) Training and proficiency check programmes

RULES AND PROCEDURES

(a) The aerodrome operator should ensure that personnel are aware of the rules and procedures relevant to operation of the aerodrome and the relationship of their duties and responsibilities to the aerodrome operation as a whole.

(b) Proficiency checks should verify that personnel are aware of the rules and procedures relevant to their duties and responsibilities.

GM1 ADR.OR.D.017(a);(b) Training and proficiency check programmes

TRAINING PROGRAMME — RECURRENT, REFRESHER, AND DIFFERENCES

TRAINING

(a) Recurrent training

(1) The initial training should be valid for a period not exceeding 12 months.

Thereafter, the aerodrome operator should ensure that the persons mentioned under paragraph (a) of AMC1 ADR.OR.D.017(a);(b) complete recurrent training at intervals not exceeding 12 months since the initial completion of their training programme.

(2) If the recurrent training is undertaken within the last 3 calendar months of the 12-month period, the new validity period should be counted from the original expiry date.

(b) Refresher training

When a person mentioned under paragraph (a) of AMC1 ADR.OR.D.017(a);(b) has not performed any duties for a significant period before the expiry date of its initial training programme, or its last recurrent training (as the case may be), the aerodrome operator should ensure that that person completes a relevant refresher training prior to:

(1) being assigned duties; or

(2) being allowed unescorted access on the movement area and other operational areas of the aerodrome, as appropriate.

(c) Differences training — same aerodrome operator

The aerodrome operator should ensure that aerodrome personnel mentioned under paragraph (a) of AMC1 ADR.OR.D.017(a);(b) who have already completed the necessary training programme, and are to be assigned to different duties, complete an appropriate training which covers any differences between their previous and future duties. The differences training should be determined, as necessary, on the basis of a comparison of the required training programme with the training programme already completed by the relevant personnel, taking into account the personnel's previous training as documented in his/her training records.

(d) Differences training — other aerodrome operator

When aerodrome personnel mentioned under paragraph (a) of AMC1 ADR.OR.D.017(a);(b) who have already completed the necessary training programme, are employed by another aerodrome operator, the latter may establish a differences training for such personnel to complete. Such a differences training should be determined, as necessary, on the basis of a comparison of the training already completed by the relevant individual, (taking into account its previous training as documented in his/her training records) with the training programme that is required for the post that the person will cover. In any case, such a differences programme should not give credit for training areas which are aerodrome specific.

GM2 ADR.OR.D.017(a);(b) Training and proficiency check programmes

TRAINING PROGRAMME — CHECKING OF TRAINEES

The methods to be used for the checking of the trainees could include:

- (a) practical demonstration,
- (b) computer-based assessment,
- (c) oral or written tests,

or combinations of such methods, as appropriate.

GM1 ADR.OR.D.017(c) Training and proficiency check programmes

PROFICIENCY CHECKS

(a) Proficiency checks should be conducted by nominated assessors in accordance with AMC1 ADR.OR.D.017(d).

(b) The maximum interval between two proficiency checks should not exceed 24 months.

The first proficiency check should be completed within two years since the completion of the initial training programme.

(c) The proficiency check programme should include a validation process that measures the effectiveness of the programme.

(d) The proficiency check programme should identify checking responsibilities and relevant checking methods, including procedures to be applied in the event that personnel do not achieve the required standards.

(e) Information related to the proficiency check programme should be included in the aerodrome manual.

ADR.OPS.B.010 Rescue and firefighting services

(a) The aerodrome operator shall ensure that:

...

(3) rescue and firefighting personnel are properly trained, equipped and qualified to operate in the aerodrome environment; and

...

(b) The aerodrome operator shall establish and implement a training programme for persons involved in rescue and firefighting services of the aerodrome;

GM1 ADR.OPS.B.010(a)(3) Rescue and firefighting services

TRAINING OF RESCUE AND FIREFIGHTING PERSONNEL

The training of rescue and firefighting personnel may include training in, at least, the following areas:

(a) aerodrome familiarisation;

- (b) aircraft familiarisation;
- (c) rescue and firefighting personnel safety;
- (d) emergency communications systems on the aerodrome, including aircraft fire-related alarms;
- (e) use of the fire hoses, nozzles, turrets, and other appliances;
- (f) application of the types of extinguishing agents required;
- (g) emergency aircraft evacuation assistance;
- (h) firefighting operations;
- (i) adaptation and use of structural rescue and firefighting equipment for aircraft rescue and firefighting;
- (j) dangerous goods;
- (k) familiarisation with fire fighters' duties under the aerodrome emergency plan;
- (l) low visibility procedures;
- (m) human performance, including team coordination;
- (n) protective clothing and respiratory protection;
- (o) composite materials; and
- (p) recognition of aircraft ballistic parachute systems during emergency operations.

AMC1 ADR.OPS.B.010(b);(c) Rescue and firefighting services

TRAINING PROGRAMME OF RFFS PERSONNEL - GENERAL

The provisions of AMC1 ADR.OR.D.017(a);(b) apply also for the training programme of RFFS personnel.

In addition, the aerodrome operator should ensure that:

- (a) rescue and fire fighting personnel actively participate in live fire drills commensurate with the types of aircraft, and type of rescue and firefighting equipment in use at the aerodrome, including pressure-fed fuel fire drills; and
- (b) the rescue and firefighting personnel training programme includes training in human performance, including team coordination

ADR.OPS.B.015 Monitoring and inspection of movement area and related facilities

....

(d) The aerodrome operator should ensure that personnel conducting movement area inspections receive training in, at least, the following areas:

- (1) aerodrome familiarisation, including aerodrome markings, signs, and lighting;
- (2) Aerodrome Manual;
- (3) Aerodrome Emergency Plan;
- (4) Notice to Airmen (NOTAM) notification procedures;
- (5) aerodrome driving rules;
- (6) procedures of radiotelephony;
- (7) aerodrome inspection procedures and techniques; and
- (8) procedures for reporting inspection results and observations;

GM3 ADR.OPS.B.020 Wildlife strike hazard reduction

TRAINING FOR WILDLIFE CONTROL

(a) The aerodrome wildlife control personnel should receive formal training prior to their initial engagement as wildlife controllers.

(b) Training for aerodrome wildlife control should be documented and records of it should be retained to satisfy periodic reviews, audits, and competence checks;

(c) Training of aerodrome wildlife control personnel should be conducted by qualified aerodrome wildlife control personnel, or specialists with proven experience in this field.

(d) Wildlife control initial training should, at least, address the following general areas:

- (1) an understanding of the nature and extent of the aviation wildlife management problem, and local hazard identification;

- (2) an understanding of the national and local regulations, standards, and guidance material related to aerodrome wildlife management programs (use of best-practice models);
 - (3) appreciation of the local wildlife ecology and biology, including (where applicable) the importance of good airfield grass management policies, and the benefits they can deliver to wildlife control;
 - (4) the importance of accurate wildlife identification and observations, including the use of field guides;
 - (5) local and national laws and regulations relating to rare and endangered species, and species of special concern, and the aerodrome operators policies relating to them;
 - (6) wildlife strike remains collection, and identification policies and procedures;
 - (7) long-term (passive) control measures, including on and off aerodrome habitat management, including identification of wildlife attractions, vegetation policies, air navigation aids protection, and drainage system, and water body management practicalities;
 - (8) short-term (active) tactical measures, using well established effective wildlife removal, dispersal, and control techniques;
 - (9) documentation of wildlife activities and control measures, and reporting procedures (the aerodrome wildlife management plan);
 - (10) firearms and field safety, including the use of personal protective equipment; and
 - (11) wildlife strike risk assessment and risk management principles, and how these programs integrate with the aerodrome's safety management system.
- (e) Wildlife control staff should be fully aware of the conditions and terms of the operations of the aerodrome environment. Where this is not relevant, the wildlife control personnel should receive appropriate training, including:
- (1) aerodrome airside driver training, including aerodrome familiarisation, air traffic control communications, signs and marking, navigational aids, aerodrome operations, and safety and other matters the aerodrome operator deems appropriate; and

(2) aircraft familiarisation, including aircraft identification, aircraft engine design, and impact of wildlife strikes on aircraft systems.

(f) It should be ensured that wildlife control staff maintains competence in the role. This could be achieved either by regular refresher training or another system of monitoring, acceptable to the appropriate authority. The maintenance of competence should include the areas in (d) and (e) above, and also include:

(1) reviewing firearms safety;

(2) changes in the local environment;

(3) changes in risk management policy;

(4) recent wildlife events at the aerodrome;

(5) improvements in active and passive measures; and

(6) any other matters the aerodrome operator deems appropriate

GM1 ADR.OPS.B.025 Operation of vehicles

GRANT, SUSPENSION OR REVOCATION OF AN AIRSIDE DRIVING AUTHORISATION

(a) The aerodrome operator should grant an airside driving authorisation to persons provided that:

(1) their tasks involve driving on the movement area;

(2) they hold a State driving license or any other driving license recognised by the State;

(3) they hold a special State driving license if their duties involve the operation of a specialised vehicle;

(4) they meet the medical criteria according to the National Legislation;

(5) they hold a State Radiotelephony Operating License, or have a specific training on radiotelephony if their duties involve driving on the manoeuvring area;

(6) they have successfully completed an airside driving theoretical course, and passed the written exams;

(7) they have successfully demonstrated competency, as appropriate, in:

- (i) the operation, or use of vehicle transmit/receive equipment;
 - (ii) understanding and complying with air traffic control and local procedures;
 - (iii) vehicle navigation on the aerodrome; and
 - (iv) special skills required for the particular function.
- (b) The airside driving authorisation should be valid for a limited period of time, and renewed thereafter, provided that the driver has successfully completed a refresher training course, and meets the requirements (a)(1)–(a)(4) above;
- (c) The aerodrome operator could suspend or revoke an airside driving authorisation when the person:
- (1) does not fulfil the requirements stated in (a) (1)–(a)(4);
 - (2) has repeatedly been reported to violate movement area driving rules; and
 - (3) has been proved to drive under the effect of alcohol or drugs.
- (d) It is not necessary that all operators be trained at the same level. For example, operators whose functions are restricted to the apron. For the same reason, the aerodrome operator could establish different types of driving authorisations, e.g. one class for driving at the apron, and another one for the manoeuvring area which may also have different validity periods.

GM2 ADR.OPS.B.025 Operation of vehicles

DEVELOPMENT OF A FRAMEWORK FOR A VEHICLE DRIVER TRAINING PROGRAMME

AIRSIDE VEHICLE DRIVER

The following elements could be considered when developing programs and knowledge requirements for an airside vehicle driver training programme:

- (a) Airside driving permit (ADP)
 - (1) the issuing authority, the validity of the permit in terms of time, conditions of use, and its transferability;
 - (2) ownership of the permit and control, and audit of permit issue;

(3) local enforcement, and driving offence procedures; and

(4) relationship to State driver licensing system.

(b) National legislation and regulation

(1) government/State regulations related to general vehicle driving licenses;

(2) State/regional/local government requirements; and

(3) national aviation safety authority requirements/guidance for driving airside.

(c) Aerodrome regulations and requirements

(1) rules of the air, and ATC procedures applicable to aerodromes as they relate to vehicles, particularly rights of way;

(2) specific aerodrome regulations, requirements, and local instructions;

(3) local methods used to disseminate general information, and instructions to drivers; and

(4) local methods used to disseminate information regarding works in progress.

(d) Personal responsibilities

(1) agreed national or aerodrome requirements concerning fitness to drive (medical and health standards);

(2) issue and use of personal protective equipment, such as high visibility clothing and hearing protection;

(3) general driving standards;

(4) no-smoking/no-drinking requirements airside;

(5) responsibilities with respect to foreign object debris and fuel/oil spillage; and

(6) the responsibility to ensure that a vehicle is suitable for the task, and is used correctly.

(e) Vehicle standards

(1) condition and maintenance standards agreed at the aerodrome, and/or national level;

(2) the requirement to display obstruction lights and company insignia;

- (3) the requirement for, and content of, daily vehicle inspections;
- (4) agreed standards of aerodrome and company vehicle fault reporting and rectification; and
- (5) local requirements for the issue and display of airside vehicle permits.
- (f) General aerodrome layout
 - (1) the general geography of the local aerodrome;
 - (2) aviation terminology used such as runway, taxiway, apron, roads, crossings, runway-holding points;
 - (3) all aerodrome signs, markings and lighting for vehicles and aircraft;
 - (4) specific reference to signs, markings and lighting used to guard runways, and critical areas; and
 - (5) specific reference to any controlled/uncontrolled taxiway crossing procedures.
- (g) Hazards of general airside driving
 - (1) speed limits, prohibited areas, and no parking regulations;
 - (2) the danger zones around aircraft;
 - (3) engine suction/ingestion and blast, propellers, and helicopters;
 - (4) aircraft refuelling;
 - (5) foreign object debris and spillages;
 - (6) vehicle reversing;
 - (7) staff and passengers walking across aprons;
 - (8) air bridges and other services such as fixed electrical ground power;
 - (9) the general aircraft turnaround process;
 - (10) aircraft emergency stop and fuel cut-off procedures;
 - (11) hazardous cargo;
 - (12) local vehicle towing requirements;
 - (13) requirements for driving at night; and

(14) requirements for driving in adverse weather conditions, particularly low visibility.

(h) Local organisations

- (1) the role of the aerodrome operator in setting and maintaining standards;
- (2) the national aviation safety authority and its responsibilities;
- (3) the national and/or local police, and their involvement with airside driving; and
- (4) other enforcement authorities dealing with vehicles, driving, health, and safety.

(i) Emergency procedures

- (1) actions and responsibilities in a crisis situation (any accident or significant incident occurring on the aerodrome);
- (2) action in the event of a vehicle accident;
- (3) specific action in the event of a vehicle striking an aircraft;
- (4) action in the event of fire;
- (5) action in the event of an aircraft accident/incident; and
- (6) action in the event of personal injury.

(j) Communications

- (1) radio procedures and phraseologies to be used if applicable;
- (2) light signals used by ATC;
- (3) procedures to be used by vehicle drivers if lost or unsure of position;
- (4) local emergency telephone numbers; and
- (5) how to contact the local aerodrome safety unit.

(k) Practical training (visual familiarisation)

- (1) airside service roads, taxiway crossings, and any restrictions during low visibility;
- (2) aprons and stands;
- (3) surface paint markings for vehicles and aircraft;
- (4) surface paint markings that delineate the boundary between aprons and taxiways;

- (5) signs, markings and lighting used on the taxiway that indicate the runways ahead;
- (6) parking areas and restrictions;
- (7) speed limits and regulations; and
- (8) hazards during aircraft turnarounds and aircraft movements.

MANOEUVRING AREA VEHICLE DRIVER

(a) All drivers expected to operate on the manoeuvring area of the aerodrome should obtain an ADP covering the programme above. Any driver expected to drive on the manoeuvring area should, also, obtain an agreed period of experience in general airside driving before training to operate on the manoeuvring area.

(b) All drivers should be trained initially and be provided with refresher training regularly, with particular additional emphasis on the following areas:

(1) Aerodrome regulations and requirements

- (i) air traffic control rules, right of way of aircraft;
- (ii) the definition of movement areas, manoeuvring areas, aprons, stands; and
- (iii) methods used to disseminate information regarding works in progress.

(2) Air traffic control

- (i) the aerodrome control function and area of responsibility;
- (ii) the ground movement control function and area of responsibility;
- (iii) normal and emergency procedures used by ATC relating to aircraft;
- (iv) ATC frequencies used and normal handover/transfer points for vehicles;
- (v) ATC call signs, vehicle call signs, phonetic alphabet, and standard phraseology; and
- (vi) demarcation of responsibilities between ATC and apron control if applicable.

(3) Personal responsibilities

- (i) fitness to drive with particular emphasis on eyesight and colour perception;
- (ii) correct use of personal protective equipment;

- (iii) responsibilities with respect to foreign object debris; and
- (iv) responsibilities with respect to escorting other vehicles on the manoeuvring area.

(4) Vehicle standards

- (i) responsibility for ensuring the vehicle used is fit for the purpose and task;
- (ii) requirements for daily inspection prior to operating on the manoeuvring area;
- (iii) particular attention to the display of obstruction and general lights; and
- (iv) serviceability of all essential communications systems with ATC and base operations.

(5) Aerodrome layout

- (i) particular emphasis on signs, markings and lighting used on the manoeuvring area;
- (ii) special emphasis on signs, markings and lighting used to protect the runway;
- (iii) description of equipment essential to air navigation such as instrument landing systems (ILS);
- (iv) description of protected zones related to ILS antenna;
- (v) description of ILS protected areas, and their relation to runway-holding points;
- (vi) description of runway instrument/visual strip, cleared and graded area; and
- (vii) description of lighting used on the manoeuvring area with particular emphasis on those related to low visibility operations.

(6) Hazards of manoeuvring area driving

- (i) engine suction/ingestion and blast, vortex, propellers, and helicopter operations;
- (ii) requirements for driving at night;
- (iii) requirements for operations in low visibility and other adverse weather conditions;
- (iv) procedures in the event of a vehicle or radio becoming unserviceable while on the manoeuvring area; and

(v) right of way of aircraft, towed aircraft, and rescue and fire fighting vehicles in an emergency.

(7) Emergency procedures

(i) actions to be taken in the event of a vehicle accident/incident;

(ii) actions to be taken in the event of an aircraft accident/incident;

(iii) actions to be taken if foreign object debris or other debris is found on runways and taxiways;

(iv) procedures to be used by vehicle drivers if lost or unsure of their position; and

(v) local emergency telephone numbers.

(8) Aircraft familiarisation

(i) knowledge of aircraft types and ability to identify all types normally operating at the aerodrome;

(ii) knowledge of airline call signs; and

(iii) knowledge of aircraft terminology relating to engines, fuselage, control surfaces, undercarriage, lights, vents, etc.

(9) Practical training (visual familiarisation)

(i) all runways (including access and exit routes), holding areas, taxiways and aprons;

(ii) all signs, surface markings and lighting associated with runways, holding positions, CAT I, II, and III operations;

(iii) all signs, surface markings and lighting associated with taxiways;

(iv) specific markings that demarcate the boundary between aprons and manoeuvring areas;

(v) navigation aids such as ILS, protected area, antenna, RVR equipment, and other meteorological equipment;

(vi) hazards of operating around aircraft landing, taking off or taxiing; and

(vii) any locally used naming convention for particular areas or routes.

RADIOTELEPHONY

All drivers of vehicles operating on the manoeuvring area should be expected to display a high degree of competence with respect to the use of RTF phraseology and ICAO language requirements for air ground radiotelephony communications.

Emphasis should be placed on the following areas:

(a) Hierarchy of message priority

Message priorities, an understanding of distress, alerting, control and information messages.

(b) Phonetic alphabet

Correct pronunciation of letters, words, and numbers.

(c) Standard phraseology

(1) emphasis on the need for drivers to use standard phraseology; and

(2) the need for caution with certain phrases such as 'cleared' and 'go ahead'.

(d) Call signs for aircraft, ATC, and vehicles

(1) an understanding of terminology and acronyms used by ATC and pilots;

(2) knowledge of the airline call signs used at the aerodrome; and

(3) knowledge of vehicle call signs, and that they should be appropriate to their function (e.g. 'Operations', 'Fire', 'Engineer') and numbered when more than one vehicle is used (e.g. 'Fire 2').

(e) Read back procedures

The need for vehicle drivers to use standard readback, in the same manner as pilots, for instructions such as 'enter/cross the runway', and if conditional clearances are used.

(f) Readability scale

Understanding and use of the readability scale from 1 to 5.

(g) Lost or uncertain of position

Understanding of local procedures for vehicle drivers lost or uncertain of their position on the manoeuvring area.

(h) Vehicle breakdown

(1) local procedure for vehicle breakdown on runways and taxiways; and

(2) procedure for notifying ATC of vehicle failure.

(i) Radio failure

(1) understanding of the local procedure if radio failure occurs while on the runway or taxiway; and

(2) understanding of the light signals that can be used by ATC to pass instructions to vehicles.

(j) Transmitting techniques and use of RTF

(1) understanding the reasons for listening out prior to transmitting;

(2) use of standard phraseology and ICAO air-ground radiotelephony communications procedures;

(3) words and sounds to be avoided;

(4) correct positioning of microphones to avoid voice distortion;

(5) avoidance of 'clipped' transmissions;

(6) awareness of regional accents and variations of speech; and

(7) speed of delivery of RTF phraseology.

(k) Portable radios

(1) correct use of radios;

(2) effective range and battery life;

(3) screening/shielding effects on the aerodrome; and

(4) use of correct call signs, either related to a vehicle or a person.

(l) Safety while using radios

(1) local instructions regarding the use of portable radios and hand-held microphones while driving a vehicle; and

(2) local instructions on the use of mobile telephones while operating airside.

GENERAL CONSIDERATIONS

(a) All three training programmes should consist of two main parts, the first being the theoretical part which should include the use of prepared presentations, maps, diagrams, videos, booklets and checklists as appropriate. The second part should involve practical training and visual familiarisation on the aerodrome with a suitably trained person. This practical tuition will take time depending upon the complexity of the aerodrome.

(b) Where the responsibility for vehicle driver training (apron and manoeuvring area) and RTF training is delegated to a third-party provider, the aerodrome management should institute a programme of audits, as part of its safety management system, to ensure that agreed standards are being maintained.

(c) The framework for a vehicle driver training programme outlined above is intended only as a guide, and is based on current 'good practice'. It is incumbent on aerodrome operators to regularly review their vehicle driver training programmes against programmes and documentation available across the industry.

APPENDIX B

TRAINING SUBJECTS AND INDICATIVE CONTENT

Training for unescorted persons operating on the movement area or other operational areas of the aerodrome

Basic Airside Safety Training

1. Safety responsibilities
2. Operating and safety procedures overview
3. Airport's safety policy
4. Definition of hazards – Generic hazard overview
5. Recognising and reporting hazards
6. Consequences and risks
7. Safety risk management process, including roles and responsibilities
8. Safety reporting and the organisation's safety reporting system(s)
9. Airside Procedures
10. Aerodrome safety programmes.

Safety Training for non-managerial personnel involved in the operation, rescue and firefighting, maintenance, and management of the aerodrome

11. Safety responsibilities
12. Operating and safety procedures overview
13. Organisation's safety policy
14. Definition of hazards
15. Recognising and reporting hazards
16. Consequences and risks
17. Safety risk management process, including roles and responsibilities
18. Safety reporting and the organisation's safety reporting system(s)

Safety Training for managers and supervisors involved in the operation, rescue and firefighting, maintenance, and management of the aerodrome

1. Safety responsibilities
2. Operating and safety procedures overview
3. Organisation's safety policy
4. Definition of hazards
5. Recognising and reporting hazards
6. Hazard Identification
7. Promoting the SMS
8. Engaging operational personnel in hazard reporting
9. Consequences and risks
10. Safety risk management process, including roles and responsibilities
11. Safety risk mitigation
12. Safety reporting and the organisation's safety reporting system(s)
13. Management of change
14. Safety data analysis.

Safety Training for senior managers involved in the operation, rescue and firefighting, maintenance, and management of the aerodrome

1. Safety responsibilities
2. Operating and safety procedures overview
3. Organisation's safety policy
4. Definition of hazards
5. Recognising and reporting hazards
6. Hazard Identification
7. Active promotion of the safety management system
8. Engaging operational personnel in hazard reporting
9. Consequences and risks
10. Safety risk management process, including roles and responsibilities
11. Safety risk mitigation
12. Safety reporting and the organisation's safety reporting system(s)
13. Management of change
14. Safety data analysis.

15. Compliance with European Union, National And The Organisation's Own Safety Requirements
16. Allocation Of Resources
17. Inter-Departmental Safety Communication,
18. Safety Assurance
19. Establishing Acceptable Levels Of Safety.

Safety Training for the Accountable manager

General awareness of the organisation's safety management system

1. Safety management system roles and responsibilities
2. safety policy and objectives
3. safety risk management
4. safety assurance.

OPERATION OF VEHICLES TRAINING

APRON

General

1. The issuing authority, the validity of the permit in terms of time, conditions of use, and its transferability;
2. Ownership of the permit and control, and audit of permit issue;
3. Local enforcement, and driving offence procedures; and
4. Relationship to state driver licensing system.

National legislation and regulation

1. Government/State regulations related to general vehicle driving licenses
2. State/regional/local government requirements
3. National aviation safety authority requirements/guidance for driving airside.

AERODROME REGULATIONS AND REQUIREMENTS

1. Rules of the air, and ATC procedures applicable to aerodromes as they relate to vehicles, particularly rights of way
2. Specific aerodrome regulations, requirements, and local instructions
3. Local methods used to disseminate general information, and instructions to drivers

4. Local methods used to disseminate information regarding works in progress.

PERSONAL RESPONSIBILITIES

1. Agreed national or aerodrome requirements concerning fitness to drive (medical and health standards)
2. Issue and use of personal protective equipment, such as high visibility clothing and hearing protection
3. General driving standards
4. No-smoking/no-drinking requirements airside
5. Responsibilities with respect to foreign object debris and fuel/oil spillage
6. The responsibility to ensure that a vehicle is suitable for the task, and is used correctly.

VEHICLE STANDARDS

1. Condition and maintenance standards agreed at the aerodrome, and/or national level
2. The requirement to display obstruction lights and company insignia
3. The requirement for, and content of, daily vehicle inspections
4. Agreed standards of aerodrome and company vehicle fault reporting and rectification
5. Local requirements for the issue and display of airside vehicle permits.

GENERAL AERODROME LAYOUT

1. The general geography of the local aerodrome
2. Aviation terminology used such as runway, taxiway, apron, roads, crossings, runway-holding points
3. All aerodrome signs, markings and lighting for vehicles and aircraft
4. Specific reference to signs, markings and lighting used to guard runways, and critical areas
5. Specific reference to any controlled/uncontrolled taxiway crossing procedures.

HAZARDS OF GENERAL AIRSIDE DRIVING

1. Speed limits, prohibited areas, and no parking regulations
2. The danger zones around aircraft

3. Engine suction/ingestion and blast, propellers, and helicopters
4. Aircraft refuelling
5. Foreign object debris and spillages
6. Vehicle reversing
7. Staff and passengers walking across aprons
8. Air bridges and other services such as fixed electrical ground power
9. The general aircraft turnaround process
10. Aircraft emergency stop and fuel cut-off procedures
11. Hazardous cargo
12. Local vehicle towing requirements
13. Requirements for driving at night
14. Requirements for driving in adverse weather conditions, particularly low visibility.

LOCAL ORGANISATIONS

1. The role of the aerodrome operator in setting and maintaining standards
2. The national aviation safety authority and its responsibilities
3. The national and/or local police, and their involvement with airside driving
4. Other enforcement authorities dealing with vehicles, driving, health, and safety.

EMERGENCY PROCEDURES

1. Actions and responsibilities in a crisis situation (any accident or significant incident occurring on the aerodrome)
2. Action in the event of a vehicle accident
3. Specific action in the event of a vehicle striking an aircraft
4. Action in the event of fire
5. Action in the event of an aircraft accident/incident
6. Action in the event of personal injury.

COMMUNICATIONS

1. Radio procedures and phraseologies to be used if applicable
2. Light signals used by atc
3. Procedures to be used by vehicle drivers if lost or unsure of position
4. Local emergency telephone numbers

5. How to contact the local aerodrome safety unit.

PRACTICAL TRAINING (VISUAL FAMILIARISATION)

1. Airside service roads, taxiway crossings, and any restrictions during low visibility
2. Aprons and stands
3. Surface paint markings for vehicles and aircraft
4. Surface paint markings that delineate the boundary between aprons and taxiways
5. Signs, markings and lighting used on the taxiway that indicate the runways ahead
6. Parking areas and restrictions
7. Speed limits and regulations
8. Hazards during aircraft turnarounds and aircraft movements.

MANOEUVRING AREA

All drivers expected to operate on the manoeuvring area of the aerodrome should complete the Operation Of Vehicles in the Apron Training. Any driver expected to drive on the manoeuvring area should, also, obtain an agreed period of experience in general airside driving before training to operate on the manoeuvring area.

AERODROME REGULATIONS AND REQUIREMENTS

1. Air traffic control rules, right of way of aircraft
2. The definition of movement areas, manoeuvring areas, aprons, stands
3. Methods used to disseminate information regarding works in progress.

AIR TRAFFIC CONTROL

1. The aerodrome control function and area of responsibility
2. The ground movement control function and area of responsibility
3. Normal and emergency procedures used by atc relating to aircraft
4. Atc frequencies used and normal handover/transfer points for vehicles
5. Atc call signs, vehicle call signs, phonetic alphabet, and standard phraseology
6. Demarcation of responsibilities between atc and apron control if applicable.

PERSONAL RESPONSIBILITIES

1. Fitness to drive with particular emphasis on eyesight and colour perception

2. Correct use of personal protective equipment
3. Responsibilities with respect to foreign object debris
4. Responsibilities with respect to escorting other vehicles on the manoeuvring area.

VEHICLE STANDARDS

1. Responsibility for ensuring the vehicle used is fit for the purpose and task
2. Requirements for daily inspection prior to operating on the manoeuvring area
3. Particular attention to the display of obstruction and general lights
4. Serviceability of all essential communications systems with atc and base operations.

AERODROME LAYOUT

1. Particular emphasis on signs, markings and lighting used on the manoeuvring area
2. Special emphasis on signs, markings and lighting used to protect the runway
3. Description of equipment essential to air navigation such as instrument landing systems (ils)
4. Description of protected zones related to ils antenna
5. Description of ils protected areas, and their relation to runway-holding points
6. Description of runway instrument/visual strip, cleared and graded area
7. Description of lighting used on the manoeuvring area with particular emphasis on those related to low visibility operations.

HAZARDS OF MANOEUVRING AREA DRIVING

1. Engine suction/ingestion and blast, vortex, propellers, and helicopter operations
2. Requirements for driving at night
3. Requirements for operations in low visibility and other adverse weather conditions
4. Procedures in the event of a vehicle or radio becoming unserviceable while on the manoeuvring area
5. Right of way of aircraft, towed aircraft, and rescue and fire fighting vehicles in an emergency.

EMERGENCY PROCEDURES

1. actions to be taken in the event of a vehicle accident/incident
2. actions to be taken in the event of an aircraft accident/incident
3. actions to be taken if foreign object debris or other debris is found on runways and taxiways
4. procedures to be used by vehicle drivers if lost or unsure of their position
5. local emergency telephone numbers.

AIRCRAFT FAMILIARISATION

1. Knowledge of aircraft types and ability to identify all types normally operating at the aerodrome
2. Knowledge of airline call signs
3. Knowledge of aircraft terminology relating to engines, fuselage, control surfaces, undercarriage, lights, vents, etc.

PRACTICAL TRAINING (VISUAL FAMILIARISATION)

1. All runways (including access and exit routes), holding areas, taxiways and aprons
2. All signs, surface markings and lighting associated with runways, holding positions, cat i, ii, and iii operations
3. All signs, surface markings and lighting associated with taxiways; specific markings that demarcate the boundary between aprons and manoeuvring areas
4. Navigation aids such as ils, protected area, antenna, rvr equipment, and other meteorological equipment
5. Hazards of operating around aircraft landing, taking off or taxiing
6. Any locally used naming convention for particular areas or routes.

RADIOTELEPHONY**HIERARCHY OF MESSAGE PRIORITY**

1. Message priorities, an understanding of distress, alerting, control and information messages.

PHONETIC ALPHABET

1. Correct pronunciation of letters, words, and numbers.

STANDARD PHRASEOLOGY

1. Emphasis on the need for drivers to use standard phraseology
2. The need for caution with certain phrases such as 'cleared' and 'go ahead'

CALL SIGNS FOR AIRCRAFT, ATC, AND VEHICLES

1. An understanding of terminology and acronyms used by ATC and pilots
2. Knowledge of the airline call signs used at the aerodrome
3. Knowledge of vehicle call signs, and that they should be appropriate to their function (e.g. 'Operations', 'Fire', 'Engineer') and numbered when more than one vehicle is used (e.g. 'Fire 2').

READ BACK PROCEDURES

1. The need for vehicle drivers to use standard readback, in the same manner as pilots, for instructions such as 'enter/cross the runway', and if conditional clearances are used.

READABILITY SCALE

1. Understanding and use of the readability scale from 1 to 5.

LOST OR UNCERTAIN OF POSITION

1. Understanding of local procedures for vehicle drivers lost or uncertain of their position on the manoeuvring area.

VEHICLE BREAKDOWN

1. Local procedure for vehicle breakdown on runways and taxiways
2. Procedure for notifying atc of vehicle failure.

RADIO FAILURE

1. Understanding of the local procedure if radio failure occurs while on the runway or taxiway
2. Understanding of the light signals that can be used by atc to pass instructions to vehicles.

TRANSMITTING TECHNIQUES AND USE OF RTF

1. Understanding the reasons for listening out prior to transmitting
2. Use of standard phraseology and icao air-ground radiotelephony communications procedures

3. Words and sounds to be avoided
4. Correct positioning of microphones to avoid voice distortion
5. Avoidance of 'clipped' transmissions
6. Awareness of regional accents and variations of speech
7. Speed of delivery of rtf phraseology.

PORTABLE RADIOS

1. Correct use of radios
2. Effective range and battery life
3. Screening/shielding effects on the aerodrome
4. Use of correct call signs, either related to a vehicle or a person.

SAFETY WHILE USING RADIOS

1. Local instructions regarding the use of portable radios and hand-held microphones while driving a vehicle
2. Local instructions on the use of mobile telephones while operating airside.

MONITORING AND INSPECTION OF MOVEMENT AREA AND RELATED FACILITIES TRAINING

1. Aerodrome familiarization, including aerodrome markings, signs, and lighting
2. Aerodrome manual
3. Aerodrome emergency plan
4. Notice to airmen (notam) notification procedures
5. Aerodrome inspection procedures and techniques
6. Procedures for reporting inspection results and observations

RESCUE AND FIREFIGHTING TRAINING

1. aerodrome familiarisation
2. aircraft familiarisation
3. rescue and firefighting personnel safety
4. emergency communications systems on the aerodrome, including aircraft fire-related alarms
5. use of the fire hoses, nozzles, turrets, and other appliances
6. application of the types of extinguishing agents required
7. emergency aircraft evacuation assistance

8. firefighting operations
9. adaptation and use of structural rescue and firefighting equipment for aircraft rescue and firefighting
10. dangerous goods
11. familiarisation with fire fighters' duties under the aerodrome emergency plan
12. low visibility procedures
13. human performance, including team coordination
14. protective clothing and respiratory protection
15. composite materials
16. recognition of aircraft ballistic parachute systems during emergency operations
17. participation in live fire drills commensurate with the types of aircraft, and type of rescue and firefighting equipment in use at the aerodrome, including pressure-fed fuel fire drills

WILDLIFE CONTROL TRAINING

1. Understanding of the nature and extent of the aviation wildlife management problem, and local hazard identification
2. Understanding of the national and local regulations, standards, and guidance material related to aerodrome wildlife management programs (use of best-practice models)
3. Appreciation of the local wildlife ecology and biology, including (where applicable) the importance of good airfield grass management policies, and the benefits they can deliver to wildlife control
4. The importance of accurate wildlife identification and observations, including the use of field guides
5. Local and national laws and regulations relating to rare and endangered species, and species of special concern, and the aerodrome operators policies relating to them
6. Wildlife strike remains collection, and identification policies and procedures
7. Long-term (passive) control measures, including on and off aerodrome habitat management, including identification of wildlife attractions, vegetation

policies, air navigation aids protection, and drainage system, and water body management practicalities

8. Short-term (active) tactical measures, using well established effective wildlife removal, dispersal, and control techniques
9. Documentation of wildlife activities and control measures, and reporting procedures (the aerodrome wildlife management plan)
10. Firearms and field safety, including the use of personal protective equipment
11. Wildlife strike risk assessment and risk management principles, and how these programs integrate with the aerodrome's safety management system.

MAINTENANCE - TECHNICAL TRAINING

AERODROME MAINTENANCE

1. General provisions
2. Pavements, other ground surfaces and drainage
3. Visual aids and electrical systems
4. Aerodrome reference code (ARC)

RUNWAYS

1. Number, siting and orientation of runways
2. Number, siting, and orientation of runways
3. Choice of maximum permissible crosswind components
4. Data to be used
5. Runway threshold
6. Length of runway and declared distances
7. Runways with stopways or clearways
8. Width of runways
9. Minimum distance between runways
10. Longitudinal slopes, sight distance and slope changes of runways
11. Transverse slopes on runways
12. Runway strength
13. Surface of runways
14. Runway turn pads
15. Runway shoulders (
16. Runway strip to be provided

17. Objects on runway strips
18. Drainage characteristics of the movement area and adjacent areas
19. Clearways
20. Stopways
21. Radio altimeter operating area
22. Runway end safety areas (RESA)

TAXIWAYS

1. Taxiways general
2. Width of taxiways
3. Taxiways curves, junction and intersections
4. Taxiway minimum separation distance
5. Longitudinal slopes on taxiways
6. Transverse slopes on taxiways
7. Strength and surface of taxiways
8. Rapid exit taxiways
9. Taxiways on bridges
10. Taxiway shoulders
11. Taxiway Strip
12. Holding bays, runway-holding positions, intermediate holding positions, and road-holding positions

APRONS

1. General Provisions
2. Size, slopes and strength of aprons
3. Clearance distances on aircraft stands

ISOLATED AIRCRAFT PARKING POSITION

DE-ICING/ANTI-ICING FACILITIES

1. Location, strength, slopes and size
2. Clearance distances on a de-icing/anti-icing pad

OBSTACLE LIMITATION SURFACES

1. Applicability
2. Outer horizontal surface

3. Conical surface
4. Inner horizontal surface
5. Approach surface
6. Transitional surface
7. Take-off climb surface
8. Obstacle-free zone (OFZ)

OBSTACLE LIMITATION REQUIREMENTS

1. General
2. Non-instrument runways
3. Non-precision approach runways
4. Precision approach runways
5. Runways meant for take-off
6. Other objects

VISUAL AIDS FOR NAVIGATION (INDICATORS AND SIGNALLING DEVICES)

1. Wind and landing direction
2. Signalling lamp
3. Signal panels and signal area

VISUAL AIDS FOR NAVIGATION (MARKINGS)

1. Colour and conspicuity
2. Runway designation marking
3. Runway markings
4. Taxiway markings
5. VOR aerodrome checkpoint marking
6. Aircraft stand marking
7. Apron safety lines
8. Apron service road marking
9. Road-holding position marking
10. Mandatory instruction marking
11. Information marking

VISUAL AIDS FOR NAVIGATION (LIGHTS)

1. General Provisions

2. Aeronautical beacons
3. Approach lighting
4. Visual approach slope indicator systems
5. Precision approach path indicator and Abbreviated precision approach path indicator (PAPI and APAPI)
6. Circling guidance lights
7. Runway lead-in lighting systems
8. Runway threshold identification lights
9. Runway edge lights
10. Runway threshold and wing bar lights
11. Runway end lights
12. Runway centre line lights
13. Rapid exit taxiway indicator lights (RETILs)
14. Stopway lights
15. Runway status lights (RWSLs)
16. Taxiway centre line lights
17. Taxiway edge lights
18. Runway turn pad lights
19. Stop bars
20. Intermediate holding position lights
21. Runway guard lights
22. Apron floodlighting
23. Visual docking guidance system
24. Aircraft stand manoeuvring guidance lights
25. Road-holding position light
26. No-entry bar

VISUAL AIDS FOR NAVIGATION (SIGNS)

1. General provisions
2. Mandatory instruction signs
3. Information signs
4. VOR aerodrome checkpoint sign
5. Aircraft stand identification signs

6. Road-holding position sign

VISUAL AIDS FOR NAVIGATION (MARKERS)

1. General Provisions
2. Unpaved runway edge markers
3. Stopway edge markers
4. Edge markers for snow-covered runways
5. Taxiway markers

VISUAL AIDS FOR DENOTING OBSTACLES

1. Objects to be marked and/or lighted within and outside the lateral boundaries of the obstacle limitation surfaces
2. Lighting and marking of fixed objects
3. Marking and lighting of other objects

VISUAL AIDS FOR DENOTING RESTRICTED USE AREAS

1. Closed runways and taxiways, or parts thereof
2. Non-load-bearing surfaces
3. Pre-threshold area
4. Unserviceable areas

ELECTRICAL SYSTEMS

1. Electrical power supply systems for air navigation facilities
2. Electrical power supply systems
3. System design, monitoring and serviceability levels

AERODROME OPERATIONAL SERVICES, EQUIPMENT AND INSTALLATION

1. Emergency access and service roads
2. Fire stations
3. Equipment frangibility requirements
4. Siting of equipment and installations on operational areas
5. Fencing
6. Autonomous runway incursion warning system (ARIWS)

COLOURS FOR AERONAUTICAL GROUND LIGHTS, MARKINGS, SIGNS AND PANELS

1. General Provisions

2. Colours for aeronautical ground lights, markings, signs and panels
3. Aeronautical ground light characteristics

OPERATIONAL TRAINING

1. Aircraft stand allocation
2. Marshalling service
3. Follow-me (leader vehicle)
4. Blast precautions
5. Apron cleaning
6. Aircraft pushbacks
7. Operation of air bridges
8. Vehicle movements
9. Apron discipline
10. Dissemination of information
11. Work in progress (WIP)
12. Foreign object debris (FOD) control

APPENDIX C

QUESTIONNAIRE

Regulatory Training Program Questionnaire

The purpose of this questionnaire is to register the opinion of aviation professionals regarding the importance, frequency, methodology and efficiency of safety related regulatory training subjects.

1. Are you:

- Male
- Female

2. What is your age?

- 18-24
- 25-34
- 35-44
- 55-64
- 25-34
- 45-54
- 55 or over

3. What is the highest level of formal education you have completed? (Please check only one.)

- Graduated High School
- Graduated Degree
- Post-Graduate Degree

4. What is your primary function at the airport?

- Operations
- Emergency/Rescue and Firefighting
- Maintenance/Technical
- Safety/Compliance

5. What is your role within your agency/organization?

- Front line Personnel
- Supervisor/Management

6. Are you involved in the management/administration of training?

- Yes
- No

7. How many years of experience in your field do you have?

- 1-2
- 3-5
- 5-10
- More than 10 years

8. Rate the importance of the following training subjects for the overall management system of the airport:

Choose only one answer for each training subject

	<u>Very Important</u> (4)	<u>Important</u> (3)	<u>Somewhat Important</u> (2)	<u>Not Important</u> (1)	<u>N/A</u>
Rescue and firefighting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildlife control training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance - Technical training (EASA technical requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring and inspection of movement area and related facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operation of vehicles - apron	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operation of vehicles – manoeuvring area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Radiotelephony	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety Management System	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic Airside Safety Training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Indicate which training method you consider appropriate for initial delivering of the following training subjects:

You may choose more than one training method for each training subject

	<u>Classroom/Lecture</u>	<u>E-learning/ Computer-based training</u>	<u>Practical Training/Demonstration</u>	<u>On-the-Job Training</u>
Rescue and firefighting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildlife control training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance - Technical training (EASA technical requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operational (Marshalling, Follow-Me, Pushback	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Procedures, FOD Managements, PBB Operation, etc)				
Monitoring and inspection of movement area and related facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operation of vehicles - apron	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operation of vehicles – manoeuvring area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Radiotelephony	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety Management System	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic Airside Safety Training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Indicate which method you consider appropriate for evaluation of the trainees' competency following initial training:

You may choose more than one training method for each training subject

	<u>Written Test</u>	<u>Oral test</u>	<u>Practical Demonstration</u>	<u>Computer-based assessment</u>	<u>On-the-Job Assessment</u>
Rescue and firefighting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildlife control training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance - Technical training (EASA technical requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring and inspection of movement area and related facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operation of vehicles - apron	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operation of vehicles – manoeuvring area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Radiotelephony	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety Management System	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic Airside Safety Training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Indicate the recurrent training frequency that you consider adequate for the following training subjects:

Choose only one answer for each training subject

	<u>Annual</u>	<u>Every two years</u>	<u>Every three years</u>	<u>Every four years</u>	<u>Every five years</u>
Rescue and firefighting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Wildlife control training	<input type="radio"/>				
Maintenance - Technical training (EASA technical requirements)	<input type="radio"/>				
Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)	<input type="radio"/>				
Monitoring and inspection of movement area and related facilities	<input type="radio"/>				
Operation of vehicles - apron	<input type="radio"/>				
Operation of vehicles – manoeuvring area	<input type="radio"/>				
Radiotelephony	<input type="radio"/>				
Safety Management System	<input type="radio"/>				
Basic Airside Safety Training	<input type="radio"/>				

12. Indicate the trainings for which competency checks conducted annually by assessors can replace scheduled recurrent trainings:

You may choose more than one training subject

Rescue and firefighting	<input type="radio"/>
Wildlife control training	<input type="radio"/>
Maintenance - Technical training (EASA technical requirements)	<input type="radio"/>
Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)	<input type="radio"/>
Monitoring and inspection of movement area and related facilities	<input type="radio"/>
Operation of vehicles - apron	<input type="radio"/>
Operation of vehicles – manoeuvring area	<input type="radio"/>
Radiotelephony	<input type="radio"/>
Safety Management System	<input type="radio"/>
Basic Airside Safety Training	<input type="radio"/>

13. Indicate the recurrent training frequency that you consider adequate for the following training subjects provided that competency checks by assessors are conducted annually:

Choose only one answer for each training subject

	<u>Annual</u>	<u>Every two years</u>	<u>Every three years</u>	<u>Every four years</u>	<u>Every five years</u>
Rescue and firefighting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Wildlife control training	<input type="radio"/>				
Maintenance - Technical training (EASA technical requirements)	<input type="radio"/>				
Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)	<input type="radio"/>				
Monitoring and inspection of movement area and related facilities	<input type="radio"/>				
Operation of vehicles - apron	<input type="radio"/>				
Operation of vehicles – manoeuvring area	<input type="radio"/>				
Radiotelephony	<input type="radio"/>				
Safety Management System	<input type="radio"/>				
Basic Airside Safety Training	<input type="radio"/>				

14. Indicate which training method you consider appropriate for recurrent delivery of the following training subjects:

You may choose more than one training method for each training subject

	<u>Classroom/Lecture</u>	<u>E-learning/Computer-based training</u>	<u>Practical Training/Demonstration</u>	<u>On-the-Job Training</u>
Rescue and firefighting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildlife control training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance - Technical training (EASA technical requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring and inspection of movement area and related facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operation of vehicles - apron	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operation of vehicles – manoeuvring area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Radiotelephony	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety Management System	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic Airside Safety Training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Indicate which method you consider appropriate for evaluation of the trainees' competency following recurrent training:

You may choose more than one method for each training subject

	<u>Written Test</u>	<u>Oral test</u>	<u>Practical Demonstration</u>	<u>Computer-based assessment</u>	<u>On-the-Job Assessment</u>
Rescue and firefighting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildlife control training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance - Technical training (EASA technical requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring and inspection of movement area and related facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operation of vehicles - apron	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operation of vehicles – manoeuvring area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Radiotelephony	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety Management System	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic Airside Safety Training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Indicate which method you consider appropriate for evaluation by assessors of personnel' s competency:

You may choose more than one method for each training subject

	<u>Written Test</u>	<u>Oral test</u>	<u>Practical Demonstration</u>	<u>Computer-based assessment</u>	<u>On-the-Job Assessment</u>
Rescue and firefighting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildlife control training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance - Technical training (EASA technical requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Monitoring and inspection of movement area and related facilities	<input type="radio"/>				
Operation of vehicles - apron	<input type="radio"/>				
Operation of vehicles – manoeuvring area	<input type="radio"/>				
Radiotelephony	<input type="radio"/>				
Safety Management System	<input type="radio"/>				
Basic Airside Safety Training	<input type="radio"/>				

17. Rate the overall effectiveness of training provided by your organization:

<u>Excellent</u> <u>(4)</u>	<u>Good</u> <u>(3)</u>	<u>Average</u> <u>(2)</u>	<u>Poor</u> <u>(1)</u>	<u>N/A</u>

Appendix D

Proposed Training Plan

Rescue and firefighting	
Initial Training Method	Classroom/Lecture
	Practical Training /Demonstration
Initial Testing Method	Written Test
	Practical Demonstration
Annual Competency Checks (as a substitute to annual recurrent training)	YES
Competency Check Method	On-the-Job Assessment
Recurrent Training Frequency	Biennial
Recurrent Training Method	E-learning/ Computer -based training
	Practical Training /Demonstration
Recurrent Testing Method	Practical Demonstration

Wildlife control	
Initial Training Method	Classroom/Lecture
	Practical Training /Demonstration
Initial Testing Method	Written Test
	Practical Demonstration
Annual Competency Checks (as a substitute to annual recurrent training)	YES
Competency Check Method	On-the-Job Assessment

Recurrent Training Frequency	Quadrennial
Recurrent Training Method	E-learning/ Computer -based training
	Practical Training /Demonstration
Recurrent Testing Method	Computer-based assessment
	Practical Demonstration

Maintenance - Technical (EASA technical requirements)	
Initial Training Method	Classroom/Lecture
Initial Testing Method	Written Test
Annual Competency Checks (as a substitute to annual recurrent training)	YES
Competency Check Method	On-the-Job Assessment
Recurrent Training Frequency	Triannual
Recurrent Training Method	E-learning/ Computer -based training
	Practical Training /Demonstration
Recurrent Testing Method	Computer-based assessment

Operational (Marshalling, Follow-Me, Pushback Procedures, FOD Managements, PBB Operation, etc.)	
Initial Training Method	Classroom/Lecture
	Practical Training /Demonstration
Initial Testing Method	Written Test
	Practical Demonstration
Annual Competency Checks (as a substitute to annual recurrent training)	NO
Competency Check Method	N/A

Recurrent Training Frequency	Annual
Recurrent Training Method	E-learning/ Computer -based training
	Practical Training /Demonstration
Recurrent Testing Method	Practical Demonstration

Monitoring and inspection of movement area and related facilities

Initial Training Method	Classroom/Lecture
	On-the-Job Training
Initial Testing Method	Written Test
	Practical Demonstration
Annual Competency Checks (as a substitute to annual recurrent training)	YES
Competency Check Method	On-the-Job Assessment
Recurrent Training Frequency	Quadrennial
Recurrent Training Method	E-learning/ Computer -based training
	On-the-Job Training
Recurrent Testing Method	Practical Demonstration

Operation of vehicles - apron

Initial Training Method	Classroom/Lecture
	Practical Training /Demonstration
Initial Testing Method	Written Test
	Practical Demonstration
Annual Competency Checks (as a substitute to annual recurrent training)	YES

Competency Check Method	On-the-Job Assessment
Recurrent Training Frequency	Quadrennial
Recurrent Training Method	E-learning/ Computer -based training
	On-the-Job Training
Recurrent Testing Method	Practical Demonstration

Operation of vehicles – maneuvering area	
Initial Training Method	Classroom/Lecture
	Practical Training /Demonstration
Initial Testing Method	Written Test
	Practical Demonstration
Annual Competency Checks (as a substitute to annual recurrent training)	NO
Competency Check Method	N/A
Recurrent Training Frequency	Biennial
Recurrent Training Method	E-learning/ Computer -based training
	Practical Training /Demonstration
Recurrent Testing Method	Practical Demonstration

Radiotelephony	
Initial Training Method	Classroom/Lecture
	Practical Training /Demonstration
Initial Testing Method	Written Test
	Practical Demonstration

Annual Competency Checks (as a substitute to annual recurrent training)	YES
Competency Check Method	On-the-Job Assessment
Recurrent Training Frequency	Quadrennial
Recurrent Training Method	E-learning/ Computer -based training
	Practical Training /Demonstration
Recurrent Testing Method	Practical Demonstration

Safety Management System	
Initial Training Method	Classroom/Lecture
Initial Testing Method	Written Test
Annual Competency Checks (as a substitute to annual recurrent training)	YES
Competency Check Method	On-the-Job Assessment
Recurrent Training Frequency	Triannual
Recurrent Training Method	E-learning/ Computer -based training
Recurrent Testing Method	Computer-based assessment

Basic Airside Safety Training	
Initial Training Method	Classroom/Lecture
Initial Testing Method	Written Test
Annual Competency Checks (as a substitute to annual recurrent training)	YES
Competency Check Method	Computer-based assessment
Recurrent Training Frequency	Quadrennial
Recurrent Training Method	E-learning/ Computer -based training

Recurrent Testing Method	Computer-based assessment
--------------------------	---------------------------

References

- Aeroporto Leonardo Da Vinci - Fiumicino. (2020). *MANUALE DI AEROPORTO – PARTE B*. Rome: Aeroporto Leonardo Da Vinci - Fiumicino.
- Airports Council International. (2010). *Airside Safety Handbook*. Geneva: ACI World.
- Airports Council International. (2020, 10 19). *ACI Global Training*. From Airports Council International: <https://aci.aero/global-training/>
- Airside Compliance. (2019). *Gatwick Airport Aerodrome Manual*. Gatwick Airport: Gatwick Airport Ltd.
- Antwi, E. A., Tampah-Naah, C., & Buame, J. A. (2019). Exploring Blended Training Scheme To Improve Employee Training Outcomes: An Assessment Of Orientation Training Programmes In University For Development Studies. *UDS International Journal of Development*, 75-85.
- Bell, B. S., Tannenbaum, S. I., Ford, J. K., Noe, R. A., & Kraiger, k. (2017). 100 years of training and development research: What we know and where we should go. *Journal of Applied Psychology*, 305-323.
- Bellotti, C. (2019). Evaluation tools: The model of Proficiency check of Milan Bergamo Airport. In A. Bellingardi, M. Tagliabue, R. R. Rampinelli, L. Monteleone, & A. Cortinovis, *Regulation (EU) 139/2014: Training and Proficiency Check. The model of Milan Bergamo Airpor* (pp. 64-71). Milano: EDUCatt.
- Civil Aviation Authority. (2020, October 20). *Compliance monitoring*. From Civil Aviation Authority: <https://www.caa.co.uk/Commercial-industry/Airports/Aerodrome-licences/Certificates/Compliance-monitoring/>
- Cocuľová, J. (2017). The Analysis of the Selected Factors Influencing the Selection of Employee. *Journal of Human Resources Management and Labor Studies*, 7-14.
- De Crescenzo, G., & Sickert, A. (2017, June 9). *Aerodrome Certification – State of play & what to expect*. From Airport Business: <http://www.airport-business.com/2017/06/aerodrome-certification-state-play-expect/>
- Department of Civil Aviation. (2017). *Larnaka and Pafos Aerodromes Certification Process*. Nicosia: Ministry of Transport, Communications and Works.
- Department of Civil Aviation. (2018, May 25). Certificate CY-001. Nicosia, Cyprus: Department of Civil Aviation.
- Direction de l'Aviation Civile. (2017). *Aerodrome Certification and Ongoing Oversight Guidance*. Luxembourg: Direction de l'Aviation Civile.
- Doncaster Sheffield Airport . (2018). *Doncaster Sheffield Airport Aerodrome Manual*. Doncaster: Doncaster Sheffield Airport .
- European Aviation Safety Agency. (2019). *Easy Access Rules for Aerodromes (Regulation (EU) No 139/2014*. Cologne: European Aviation Safety Agency.

- European Commission. (2014, February 12). COMMISSION REGULATION (EU) No 139/2014. *Official Journal of the European Union*, 44/1-44/34.
- European Parliament and the Council of the European Union. (2008). Regulation (EC) No 216/2008. *Official Journal of the European Union*, 79/1-79/49.
- Hadjiyasemis, P. (2018). *Larnaka and Pafos Aerodromes Certification Process EU 139/2014 / ADR.OR.D.017 Training and Proficiency Check Programmes*. Nicosia: Department of Civil Aviation.
- Hadjiyasemis, P. (2019). *Larnaka and Pafos Aerodromes Oversight EU 139/2014 / ADR.OR. D017 Training and Proficiency Check Programmes*. Nicosia: Department of Civil Aviation.
- Hagos, K. (2018). *Assessment Of Employee Training Practice In Myungsung Christian Medical Hospital*. Addis Ababa.
- Hermes Airports Ltd. (2019). *Safety Training Manual Larnaka and Pafos International Airports*. Larnaka: Hermes Airports Ltd.
- International Air Transport Association. (2020, October 19). *Training*. From International Air Transport Association: <https://www.iata.org/en/training/>
- International Civil Aviation Organization. (1991). *Airport Services Manual Part 7 Airport Emergency Planning*. Montreal: International Civil Aviation Organization.
- International Civil Aviation Organization. (1998). *Human Factors Training Manual*. Montreal: International Civil Aviation Organization.
- International Civil Aviation Organization. (2001). *Manual on Certification of Aerodromes*. Montreal: International Civil Aviation Organization.
- International Civil Aviation Organization. (2007). *Manual on the Prevention of Runway Incursions*. Montreal: International Civil Aviation Organization.
- International Civil Aviation Organization. (2012). *Airport Services Manual Part 3 Wildlife Control and Reduction*. Montreal: International Civil Aviation Organization.
- International Civil Aviation Organization. (2016). *Annex 14, Aerodromes —Volume I, Aerodrome Design and Operations*. Montreal: International Civil Aviation Organization.
- International Civil Aviation Organization. (2018). *PANS-Aerodromes (Doc 9981)*. Montreal: International Civil Aviation Organization.
- International Civil Aviation Organization. (2020, October 19). *ICAO / Global Aviation Training / Training Catalogue*. From ICAO: <https://www.icao.int/training/Pages/Training-Catalogue.aspx?subjectid=1>
- Manchester Airports Group Airfield Operations, Safety & Compliance. (2018). *Manchester Airport Aerodrome Manual*. Manchester Airport: Manchester Airports Group.
- Miltiadous, M. (2018). *Larnaka and Pafos Aerodromes Certification Process EU 139/2014 / ADR.OR.D.017 Training and Proficiency Check Programmes*. Larnaka: Hermes Airports Ltd.
- Postolov, K., Pulevska Ivanovska, L., & Sopova, M. M. (2016). *Adult employee training in a changing organization*.

- Safety and Airspace Regulation Group. (2018). *CAP 642 - Airside Safety Management*. Gatwick Airport South: Gatwick Airport South.
- Safety Regulation Division. (2020, October 20). *Aerodrome Licensing requirements*. From Irish Aviation Authority: <https://www.iaa.ie/publications/docs/default-source/publications/aeronautical-notices/t---notices-to-aerodrome-licence-holders/aerodrome-licensing-requirements>
- Safety Regulation Division. (2020, October 20). *The Aerodrome Manual*. From Irish Aviation Authority: <https://www.iaa.ie/publications/docs/default-source/publications/aeronautical-notices/t---notices-to-aerodrome-licence-holders/the-aerodrome-manual>
- Safety Regulation Group. (2002). *CAP 700 - Operational Safety Competences*. Gatwick Airport South: Civil Aviation Authority .
- Safety Regulation Group. (2019). *CAP 168 - Licensing of Aerodromes* . Gatwick Airport South: Civil Aviation Authority .
- SEA Aeroporti di Milano. (2019). *Airport Regulations of of Malpensa Airport*. Milan: SEA Aeroporti di Milano.
- Siedenburg, J. (2008). Legal Background of Aviation Medicine in Europe and its future development. *Hippokratia*, 64-73.
- Spiliotis, P., & Sickert, A. (2018, June 21). *A new era for airport safety in Europe, but not without complications*. From Airpor Business: <http://www.airport-business.com/2018/06/new-era-airport-safety-europe-not-without-complications/>