INTERNATIONAL FEDERATION OF AIR TRAFFIC CONTROLLERS' ASSOCIATIONS

Agenda Item: C.6.3   **WORKING PAPER**   **WP No: 153**
                                                                   IFATCA'25

ATFM Licensing study

Presented by PLC

SUMMARY

Air Traffic Flow Management (ATFM) personnel are currently not required under International Civil Aviation Organization (ICAO) standards and recommended practices to hold a licence to perform their duties. This paper will take a look into the role of ATFM personnel and their responsibilities, to establish if a licensing system similar to the one in existence for Air Traffic Control Officers (ATCOs) is required.

1.   INTRODUCTION

1.1.   As airspace and aerodromes become more congested, there is an increasing need to coordinate traffic flows before they occur, and to avoid overloading the system. Air traffic flow management (ATFM) has been introduced in many regions of the world, and the air traffic control (ATC) service is increasingly relying on effective ATFM.

1.2.   As ATFM becomes increasingly significant, it highlights the importance of being conducted by people who have been trained and assessed appropriately.

1.3.   To understand if ATFM operators require licensing, one first needs to look into the role and responsibilities they have in the greater air traffic management (ATM) system.

1.4.   If this role has a significant impact on the safety of the ATM system, it should have some sort of validation. This paper aims to explore whether this be licensing, as is the case for ATCO, or if a Competency Based Training and Assessment (CBTA) framework could be better suited, as is the case with Air Traffic Safety Electronics Personnel (ATSEP).

1.5.   When licensing or a CBTA should be in place, what should be the requirements in such a license or CBTA?

2.   DISCUSSION

2.1.   To better understand why the question of licensing has come up, we should look at what is meant by ATFM and ATFM personnel and what their roles and responsibilities are.

2.2.   ATFM is a component of air traffic management, and is a service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that ATC capacity is utilised to the maximum extent possible. The ATFM service is conducted from within an ATFM unit, which is usually a distinct unit from an ACC, APP or TWR: the EUROCONTROL Network Manager and the FAA Air Traffic Control System Command Centre are examples of ATFM units.

2.3.   The ATFM service uses ATFM measures to adjust air traffic demand for aerodromes and portions of airspace. It is important to make the distinction that ATFM units and the ATFM personnel/officers working in ATFM units do not communicate directly with pilots. ATFM personnel do not issue ATC clearances and instructions to individual flights, and ATFM units rely on ATC units to enact their ATFM measures. For example, while ATFM personnel/officers working in an ATFM unit may assign a flight a specific take-off time in order to alleviate demand for a portion of airspace or destination aerodrome, it is the ATCOs working in the TWR who issue the taxi and take-off clearances in order to achieve that take-off time.

2.4.   It is also important to note that ATFM is not concerned with establishing a sequence of flights, such as what is done by arrival management tools. Instead, ATFM is concerned with balancing overall traffic flows with the capacity of aerodromes and portions of airspace. As such: -

> "… air traffic flow management (ATFM) is an enabler of air traffic management (ATM) [...]. It contributes to the safety, efficiency, cost-effectiveness and environmental sustainability of an ATM system. It is also a major enabler of global interoperability in the air transport industry"
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> **Manual on Collaborative Air Traffic Flow Management (3rd Edition, 2018)**

2.5.   Among the objectives of ATFM (according to ICAO, 2018) are the following:

- Enhancing the safety of the ATM system by ensuring the delivery of safe traffic densities and minimising traffic surges;
- Ensuring an optimum flow of air traffic throughout all phases of the operation of a flight by balancing demand and capacity;
- Facilitating collaboration among system stakeholders to achieve an efficient flow of air traffic through multiple volumes of airspace in a timely and flexible manner that supports the achievement of the business or mission objectives of airspace users (AUs) and provides optimum operational choices;
- Balancing the legitimate but sometimes conflicting requirements of all AUs, thus promoting equitable treatment;

- Reconciling ATM system resource constraints with economic and environmental priorities;
- Facilitating, by collaborating with all stakeholders, the management of constraints, inefficiencies, and unforeseen events that affect system capacity in order to minimise negative impacts of disruptions and changing conditions; and
- Facilitating the achievement of a seamless and harmonised ATM system while ensuring compatibility with international developments.

Importance of ATFM in practice:

- Protecting a key element in ATM safety, the ATCO, from overload, thus enhancing safety;
- Selecting the most appropriate ATFM solution in a timely manner. Such as amongst others: increased staffing, selecting certain runways in use, implementing airspace changes, rerouting of traffic flows, rescheduling of flights, rerouting of certain traffic flows, ground delay programs which avoid no notice holding which in turn reduces the environmental impact of airborne holding and the risk of diversion to alternate aerodromes due to fuel constraints (Skybrary, n.d.);
- Taking into account meteorological effects on the traffic flow;
- Many ATC units around the world wouldn't be able to function without ATFM anymore, they have gotten rid of published holdings in lieu of ground delay programs and/or they and their neighbouring sectors are constantly working at maximum capacity. To them ATFM is simply of paramount importance.

The future of ATFM

2.6. The future of ATFM will be more specialised due to the introduction of several new projects and technologies, one of these technologies is Trajectory Based Operations (TBO).

2.7. Trajectory Based Operations, will increase the importance and scope of ATFM, as ATFM will be more involved in the process of constant adjustment of flight trajectories. TBO will increase flight efficiency, and advanced automation will require ATFM data to be accurate, processed and disseminated in a pre-described manner. As such ATFM will affect a flight and influence TBO in the decision-making, control and coordination.

2.8. As airspace and aerodromes become more congested, there is an increasing need to coordinate traffic flows before they occur, in order to avoid overloading the system and the humans in charge of managing traffic (Skybrary, n.d.).

Similarities with other aviation professions

2.9. ATSEP who also have a safety critical role in the ATM system have been trying to be included into Annex 1 Licensing for many years but have so far not been successful. They do however have a Competency Based Training and

Assessment framework (CBTA). Which in a broad way functions very similar to licensing. It encompasses Initial training, Unit training, Continuation training and Development training. (ICAO, 2020)

Current IFATCA policy

2.10.   IFATCA has current policy in TRNG 9.4.3 Air Traffic Flow Management (ATFM)

> ATFM staff not performing clerical or administrative functions, so called ATFM controllers, shall be qualified controllers with recent experience on control duties on entry to ATFM services.
>
> The responsibility for aircraft in flight remains solely with ATC and any subsequent ATFM involvement shall be at the request of ATC only.
>
> An ATFM controller shall hold an ATFM rating. Such a rating shall require the ATFM controller to demonstrate a comprehensive knowledge, skill and experience of all relevant ATC procedures and ATFM duties.
>
> ATFM controllers should be obliged to familiarise themselves with major changes in ATC procedures and maintain their acquaintance with problem areas with relation to ATFM within their region.

TRNG 9.4.3 Air Traffic Flow Management (ATFM)

2.11.   Since the current IFATCA policy requires ATFM personnel to be qualified ATCO's on entry to ATFM services. This raises the following question: Are the licensing requirements for Air Traffic Controllers in line with the requirements/objectives of ATFM?

2.12.   ICAO Annex 1 sets the following knowledge requirements for the issue of an Air Traffic Controller licence

- Air law: rules and regulations relevant to air traffic controller;
- Air traffic control equipment: principles, use and limitations of equipment used in air traffic control;
- General knowledge: principles of flight; principles of operation and functioning of aircraft and RPAS, engines and systems; aircraft performance relevant to air traffic control operations;
- Human performance: human performance including principles of threat and error management;
- Meteorology: aeronautical meteorology; use and appreciation of meteorological documentation and information; origin and characteristics of weather phenomena affecting flight operations and safety; altimetry;
- Navigation: principles of air navigation; principle, limitation and accuracy of navigation systems and visual aids; and
- Operational procedures: air traffic control, communication, radiotelephony and phraseology procedures (routine, non-routine and emergency); use of the relevant aeronautical documentation; safety practices associated with flight." (ICAO, 2022b)

2.13. Currently there is no equivalent Annex 1 requirement for ATFM personnel.

2.14. PLC would like ATFM personnel to be capable, therefore some kind of framework would need to be established. This could be either licensing or CBTA.

2.15. Licensing is a commonly used tool for ensuring standards are met and maintained. But as we have seen with ATSEPs it is really difficult to convince ICAO/states to implement licensing. In the meantime, a CBTA can achieve the same end result without the pushback of implementing licensing.

2.16. In the current IFATCA policy there are only requirements upon entry into ATFM duties. However, there are currently no requirements for follow up training and assessment regarding ATFM personnel.

3. CONCLUSION

3.1. From what is listed in the discussion above one can conclude that ATFM is an integral part of the ATM system to enhance safety. Therefore training and assessment of ATFM personnel should be in place to guarantee the proper functioning of this integral part of the ATM safety system and in turn protect the ATCO from overload and aid the ATCO in providing an efficient ATC service.

3.2. Comparing the licensing requirements set out in Annex 1 and the objectives and required competencies for ATFM one can see that the knowledge and skills required to acquire an Air Traffic Controller licence are, although beneficial to perform the tasks related to ATFM, not encompassing every aspect of ATFM. Therefore, it can be concluded that an Air Traffic Controller License might not be the best fit for ATFM personnel.

3.3. When looking at what would be suitable for ATFM personnel, the analogy with ATSEP springs into mind. They both perform safety critical functions and therefore should receive appropriate training and be assessed appropriately.

3.4. PLC would like ATFM personnel to be capable, it seems that a CBTA is a good fit to achieve competency. By this the personnel that have completed this CBTA are competent. This in turn means that ATFM personnel can, but do not necessarily have, to hold an ATCO license.

3.5. A CBTA framework, such as the one developed for ATSEP, would therefore be justified. It would guarantee adequate training and assessment upon entry in ATFM duties, as well as, follow-up training and assessment.

3.6. Since people performing ATFM duties at ATFM units around the world are not necessarily all ATCOs, it is advisable to change the wording in IFATCA policy from ATFM controller to ATFM personnel, this way the policy will cover a wider range of people performing ATFM tasks.

4. RECOMMENDATIONS

4.1. Propose to amend the following policy within the IFATCA TPM

> **IFATCA TPM (2024), TRNG 9.4.3 – AIR TRAFFIC FLOW MANAGEMENT (ATFM)**
>
> **Proposal:**
>
> ATFM ~~staff~~ personnel ~~not performing clerical or administrative functions, so called ATFM controllers,~~ shall be ~~qualified controllers with recent experience on control duties on entry to ATFM services.~~ subject to a competency based training and assessment framework, which amongst others will require the ATFM personnel to demonstrate a comprehensive knowledge, skill and experience of all relevant ATC procedures and ATFM duties.
>
> The responsibility for aircraft ~~in flight~~ spacing and separation remains solely with ATC ~~and any subsequent ATFM involvement shall be at the request of ATC only~~.
>
> ~~An ATFM controller shall hold an ATFM rating. Such a rating shall require the ATFM controller to demonstrate a comprehensive knowledge, skill and experience of all relevant ATC procedures and ATFM duties.~~
>
> ATFM ~~controllers~~ personnel ~~should be obliged~~ shall be required to familiarise themselves with major changes in ATC procedures and maintain their acquaintance with problem areas with relation to ATFM within their region.

4.2. PLC to study the training requirements for flow controllers during the next working year.

5. REFERENCES

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