ATCO: a first legal framework on air traffic control (ATC) data collection and sharing

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ATCO legal and ethical issues

Speech technologies (and in particular speech recognition) can be used to **transcribe pilot-air-controller conversations**.

To do so, it is **necessary** to **investigate** the **legal and ethical compliance of ATC data collection, sharing and analysis**.

Air traffic control data collections are based on the **set-up of radio-receivers** that capture the audio conversations between pilots and air-controllers. Such receivers are passive instruments that do not interfere with the conversations.

Other types of information can also be collected via the **airport** and **other air traffic sources**.

Objectives of this talk

This talk discusses related **techno-legal issues** with a **multi-disciplinary approach**.

This is **not** aimed at providing all-purpose **final answers**, but rather to **create awareness** on the current **legal framework on curating ATC big speech data**, with particular reference to

- **privacy** and **data protection**,
- **data management** and **security**,
- **Intellectual Property** and other **Rights**,
- **public data**, etc.

Using accessible data

In general, whenever **data** and resources are **accessible**, as is the case of ATC speech data, this may give the **impression** that it is also **freely usable**.

Simple actions like **recording** and **storing speech data**, **listening** to them, **transcribing** them to derive knowledge and develop new advanced tools implies the previous **analysis** of the possible application of **rules and regulations** at **different levels** (i.e. **national**, **EU**, sectoral, etc.).

Addressing the legal framework

Laws are **abstract** = application to **practical contexts evolving continuously**. Trade off: stability vs. evolution.

Laws have **boundaries**. Basic principles may be set at international and EU level but **country-specific rules** can show **meaningful differences**: what is allowed in one State, may be illegal in another.

Setting a **first basic general framework** is the **starting point** for further in-depth investigation on specific aspects and projects.

Approach: **legal and ethical aspects** should be investigated **from the very start** of any technical project or initiative, possibly **mapping each technical activit**y with the relative **legal considerations**.

Data Collection

Data are **accessible** (on air) but does this make them lawfully available for recording and research/technology activities?

Need to check **applicable rules** at national and EU level.

Can we refer to **fair use**?

Exceptions for **research purposes**?

Creating a **legal resource database** for **technical partners**.

Data Collection - examples

United Kingdom – Wireless Telegraphy Act – Art. 48 - Interception and disclosure of messages

Offence = use wireless telegraphy apparatus to obtain information on a message of which one is not the intended recipient.

Finland - **Radio Act** - radio recordings are not public and are not shared by ANS Finland, as also saved radar images.

Radiotelephone communications in aviation are protected by law against unauthorised listening and forwarding.

The Aviation Act defines the permitted uses of saved radar images of air traffic control. ANS Finlands' operations are not subject to the Act on the Openness of Government Activities.

Data protection 1/2

In **ATC voice recordings personal data** are **often not mentioned**, however this **cannot be excluded**.

Personal data processing according to Reg. (EU) 2016/679 (**GDPR**) is a very broad concept.

It refers to any action performed to pieces of information, which may – directly or indirectly – identify a person.

Respect of **basic principles**

· **transparency**,

· **data minimisation**,

· **purpose limitation**,

· **data retention**,

and specific legal rules.

Data protection 2/2

Even if recordings contained **no personal data at all**, they would however have to be managed with caution: **voiceprints** are **biometric data**.

Not only are they **potentially identifying**, but they would fall within the **"special categories" of data**.

Researchers could **freely use anonymous**, non identifying **data**. Thus, adopting anonymisation techniques would be an interesting option to be explored.

Or, at least, **pseudonymisation** techniques, which could be regarded to as a security measure (making data subjects not directly identifiable).

Biometric data can be used for the **purpose** of **uniquely identifying natural persons** only if **GDPR** conditions and national rules are met.

Copyright

In the European systems a **work** can be **copyrighted** when it constitutes an "**author's own intellectual creation**", here the system is founded upon the notion that a work can be copyrighted if the work is an **original and innovative creation**.

In the context of **ATC data collection**, basic facts such as **determined phraseology**, and **lack of creativity** in the messages sent out by all parties to the conversation could lead to think that these **communication** are **basic information** that are **not covered by IPR except** if **arranged** in a **database**.

Database protection = *sui generis* **rights**.

Ownership of ATC databases

The rules regarding ownership foresee that the **person** who has performed **substantive investment** in obtaining and verifying the contents are granted with **exclusive rights** over a **database**.
This also concerns non-creative databases.

Some or all of the rights that are granted by copyright or **sui generis rights** may be **licensed** to **third parties** either by **contract** or by **open licenses** such as Creative Commons that allow some uses upon condition that the licensee uses the database in compliance with certain restrictions (attribution, share-alike, no-derivatives, no commercial uses).

ATC as public data 1/2

ATC data can also be examined from another perspective.

A possible interpretation may consider them as **public sector data** that could be **made available** as **openly** as possible to benefit the public good.

In the **European Union** there is a **growing legislation** to allow **data** that are **produced by public entities** to be **made available openly** in order <u>to further the development of applications and services for the benefit of the public</u>.

ATC as public data 1/2

In Europe the **ANSPs** (**Air Navigation Service Providers**) are usually either **fully owned by the state** or **operated** by **state administrations** or **agencies** which could be a basic criterion to consider data produced by an entity as public data.

However, there are still **restrictions** that can be imposed on the **openness** of **data** such as the **protection of national security**, **intellectual property rights** or **protection of personal data**.

Conclusion and further work

This talk has been meant to create **general awareness** about **major topics** when working on a research project implying the collection and processing of ATC data.

Legal and ethical issues have **not yet been deeply investigated** and **further work** would be required, which would benefit from the active involvement of major **stakeholders** in the **ATC sector**.

Thank you for your attention!