AVIATION:

Draft position on the challenges of the Future of Work

1. For workers in Aviation technological development is not new. The development of better software, smaller sensors and better communications is leading to the increasing digitalisation of the global economy. **Digitalisation in aviation allows the automation of some functions and better control of processes as a whole.** It can enable the increased use of remote-control technology. Many of these technologies could be used to benefit workers and improve conditions, but can also be used to opposite effect.

2. There is a **difference** between technology introduced in order to **improve safety**, and technology introduced to make savings. **Technology driven solely by an economic incentive often reduces safety**, as has occurred in the case of the Boeing aircraft.

3. Digitalisation is leading to increased use of process and employee monitoring technology because these reduce labour costs. They are embedded in equipment, tools or infrastructure. These technologies **can monitor the physical movements, location, facial expressions and biometrics of workers** in airports. Cabin crew can have sales monitored. Pilots can have their faces monitored for fatigue. Service desk staff can have their expressions analysed, and their interactions recorded. An unprecedented amount of data can now be collected.

4. **The data produced** by these technologies **is linked to benchmarks** that are embedded in algorithms. These can contain gender and racial biases that disadvantage women and non-white workers. **These compare workers to their peers**, or to an 'ideal' and are linked to rewards and sanctions. **They are a labour discipline technology**. At the moment workers have no input into these benchmarks or how the technology is used. These technologies can hugely increase worker stress levels.

5. In areas where workers are often contracted by a digital platform, like cleaning, they are effectively managed by algorithms that determine jobs, pay rates and other aspects of the labour process. **The algorithms apply 'one size fits all' management**. These algorithms are not transparent to the workers who work under them. ork.

6. The **data is produced by workers** during their work, **but it is owned and used** either by their direct employer, or **by the provider of the technology**. And workers have no control over how this technology is used.

7. Some airports are experimenting with using monitoring and surveillance technology embedded in infrastructure to eliminate the need for security barriers, threatening the jobs of security operators. They can also scan baggage and hand-luggage as passengers move into the airport, and scan faces and passports remotely.

8. Baggage handling in some airports is moving towards the use of large automated sorting systems. These are expensive and will probably only be used in the busiest airports. Nor can they deal with oversized baggage or other non-standard items. **These systems still require workers to maintain and service** the automated systems.

9. The introduction of embedded sensors in aircraft and equipment **can enable a shift away from maintenance by schedule and towards maintenance by need**. This, along with the introduction of 3D printing will reduce the need for maintenance workers.

10. 3D printing of engine parts requires safety certification and thousands of hours of testing. Therefore, the widespread use of this technology in aircraft engines lies in the future.

11. **Remote control technology is being used in the aircraft cleaning process** through the use of inspection drones and cleaning robots. This is reducing demand for cleaning staff and changing the skills required of them.

12. Improved communications technologies and data are **enabling the increased use of remote air traffic control towers**. Air traffic controllers are coming under increased pressure as they can now control multiple airports and be required to guide flights simultaneously or sequentially across them. This is increasing mental, physical and temporal workloads. The trials are not long enough to accurately judge the impact on ATCs.

13. Airfields are relatively controlled environments. They may see the increased use of autonomous or remote-controlled vehicles on and around the airfield.

14. **Autonomous and remote-control of airborne vehicles** is quite advanced, with many aircraft already highly automated, and militaries around the world operating drones. Some companies are experimenting with creating robotic machinery capable of operating alongside human pilots. Nevertheless, **significant barriers to widespread adoption remain**, especially regulatory and social ones.

15. Increased use of autopilot technologies is reducing the number of hours where pilots are actually flying their aircraft. This has a **negative impact** when the technology fails, and the pilots are expected to take control.

16. Technology is often used to **off-load labour onto passengers** or users, as has occurred with online check in, and self-service baggage drop off.