TecnoCampus Escola Superior Politècnica

Centre adscrit a la upf. Universitat Pompeu Fabra Barcelona

Degree in Management Computer Engineering and Information Systems

Dashboard for outbound phase at Schiphol Airport

Project viability study

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Glossary of terms

TFG	Final Treball of Grau
Dashboard	graphical interface
Turnaround	Time spent by an airplane blocking the same parking parcel.la
Outbound	Time that passes from the time an aircraft leaves its parking lot until it reaches its destination

1. Technical feasibility analysis

According to the initial planning of the project there are a series of risks to be considered for the development of this project.

1.1. Hardware malfunctions or limitations:

One of the possibilities to contemplate is that the current limitations of the available hardware have a negative impact on the operation of the product or on the achievement of its own objectives.

1.2. Lack of data

This project is based on the data provided by Schiphol Airport if there is any problem with these, the achievement milestones of the objectives are affected pending new information from Amsterdam.

Considering all this information and the different software used in this project to present a free version (Python, Google Drive, Google Collaboratory, Power BI) we affirm that the achievement of the objectives of this project is realistic.

2. Analysis of economic viability

Having studied the market, and the different products available mentioned above, this product clearly differs from the rest and offers a completely different operation from the others. While the competition offers real-time analysis with the help of artificial intelligence and real-time image capture tools, this product is intended for the analysis of situations that have already happened, and of data formatted and structured in a specific way.

The main strength of our heart is the no requirement of any kind of installation at the airport. The aviation environment is surrounded by some uncertainty, as there are organizations that call for restrictions towards the sector citing climate reasons and this can have a negative impact on the market for our product, considering the above factors, development of this product is not economically viable.

3. Analysis of environmental viability

In today's digital age, technology has become an integral part of our daily life, and it is no surprise that technology also staves every month in academic research. An example of this is the use of laptops and cloud services in final-grade projects. However, it is important to consider the environmental impact of these technologies and evaluate their environmental viability.

The production of electronic devices, such as laptops, has a significant environmental impact. The extraction of raw materials, such as aluminium and lithium, as well as the use of energy in the manufacturing process, contribute to environmental degradation. In addition, the use of laptops also consumes power, especially when they are being charged and used for long periods of time. In our case it is important to consider the cycle of life of the device, including its production, use and disposal.

Cloud services, such as data storage and computing, also consume energy and produce carbon emissions. Power consumption and emissions associated with cloud services depend on the location and type of data centre used, as well as the amount of data that is stored and processed. It is important to assess the environmental impact of these services to determine their overall environmental viability.

Technology sector regulations are made to protect the interests of consumers and workers, and it is important to comply with these laws in the project.

4. Impact of the perspective of gender and diversity when developing the TFG

4.1. Colour-blindness

Colour blindness is a condition that affects how individuals perceive colours and can affect their ability to understand and use the visual information presented in this project.

It is important to consider the different types of colour blindness when choosing the colours to be used in the graphics for the dashboard.

There are three main types of colour blindness: red-green colour blindness, blue-yellow colour blindness, and total colour blindness. The most common type of colour blindness is the red-green, which affects approximately 8% of the men and 0.5% of women.

When choosing colours for graphics in a dashboard, it is important to avoid using colour combinations that can be difficult to distinguish for individuals with colour blindness. For example, red and green should not be used together, as they may appear indistinguishable to individuals with red-green colour blindness. In contrast, using high-contrast colour combinations like blue and yellow or red and blue can help ensure that information is easy for all users to understand.

In addition, it may be helpful to include alternative visual aids, such as patterns or shapes, to help individuals with colour blindness understand the information being presented. Using colour palettes and accessible guidelines, such as WCAG 2.0 guidelines, can also help ensure graphics are usable by individuals with colour blindness.

To address the possible cases of colour blindness that we may find among users we will use different external software that will check for each graph generated if the choice of colours gives possibility to any type of conflict, simulators such as Pilestone[1], Toptal[2] or Colbindor [3] will verify each one of our choices in this area, this is how the most common types of colour-blindness could effect on the vision of the dashboard.

4.1.2 Red

4.1.2.1. Weak

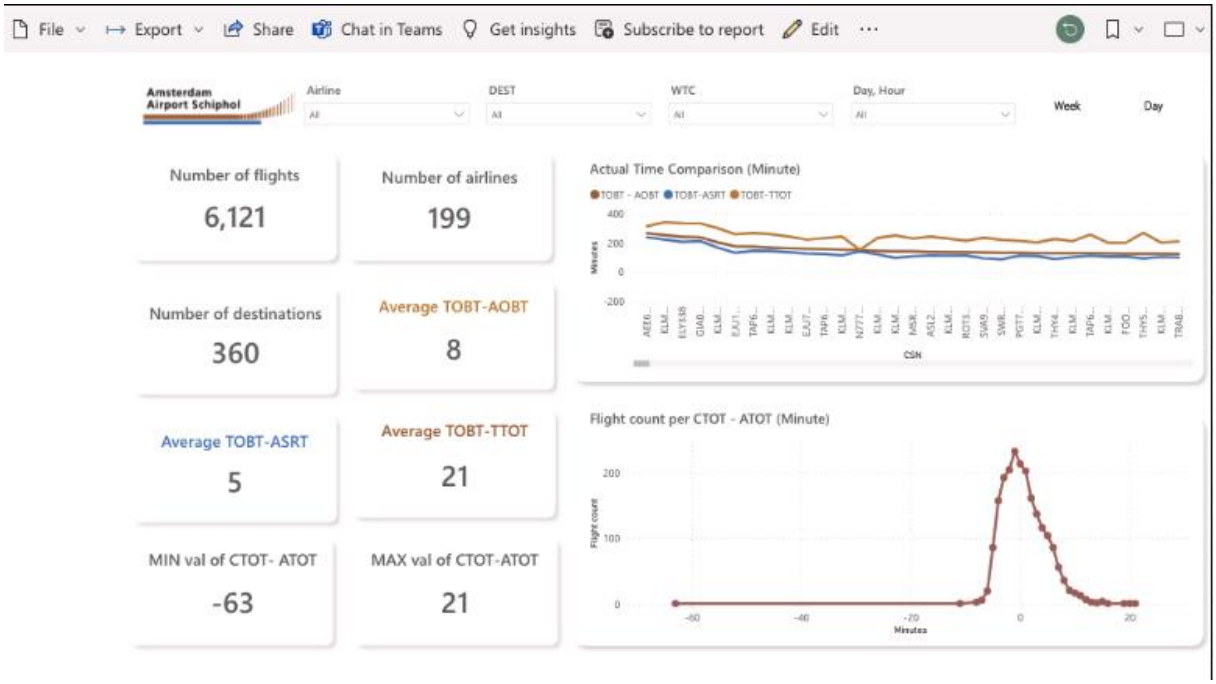

Fig 4.1.2.1.1. Red weak page "Home"

Fig 4.1.2.1.2 Red weak "Week" page

Fig 4.1.2.1.3 Red weak "Day" page

4.1.2.2 Blind

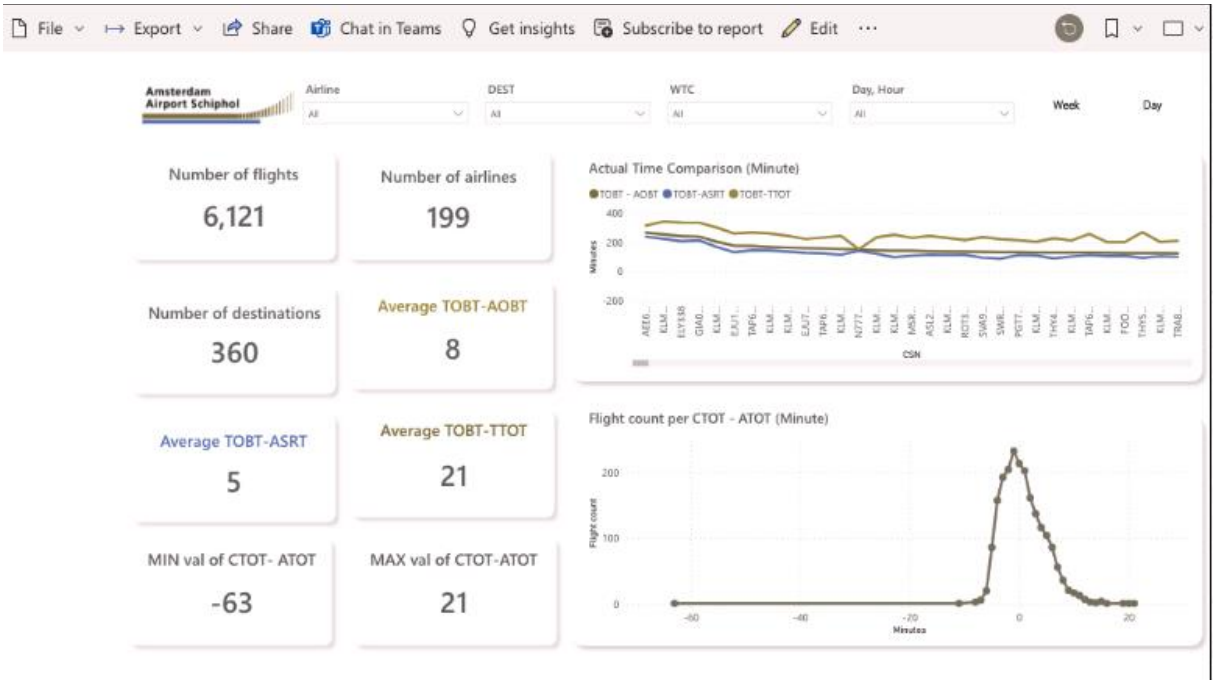

Fig 4.1.2.2.1 Red blind "Home" page

Fig 5.1.2.2.2 Red blind "Week" page

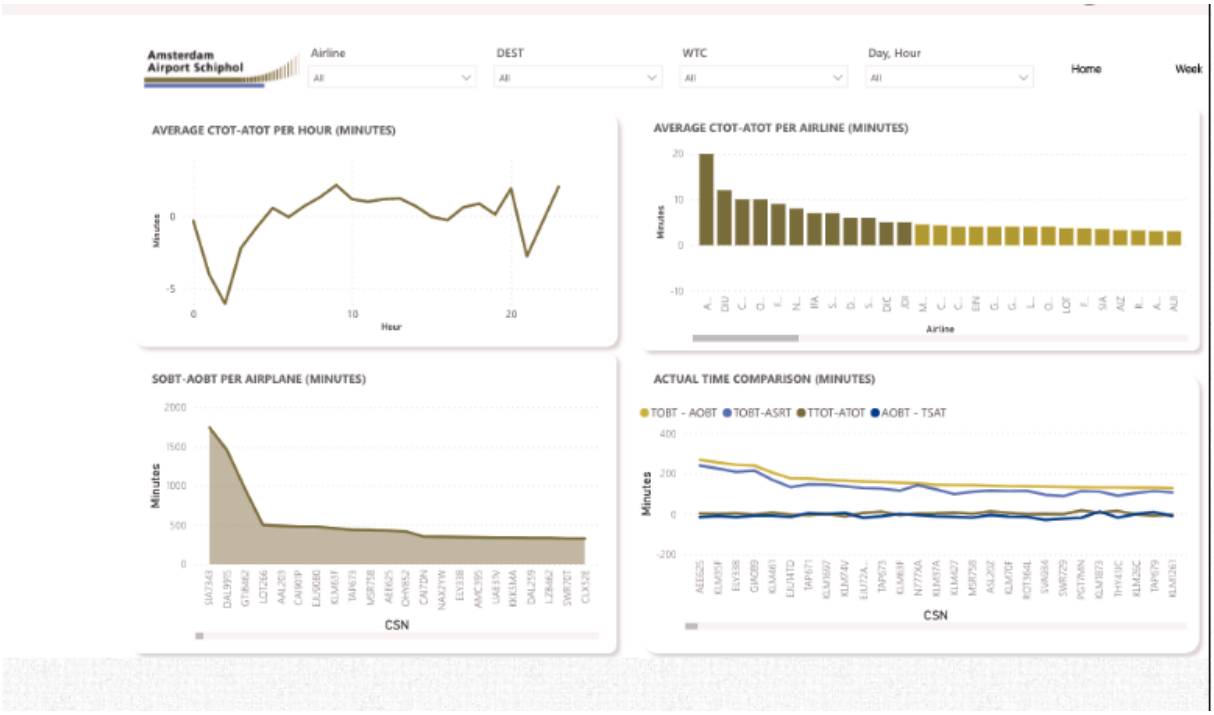

Fig 6.1.2.2.3 Red blind "Day" page

4.1.3. Green

4.1.3.1. Weak

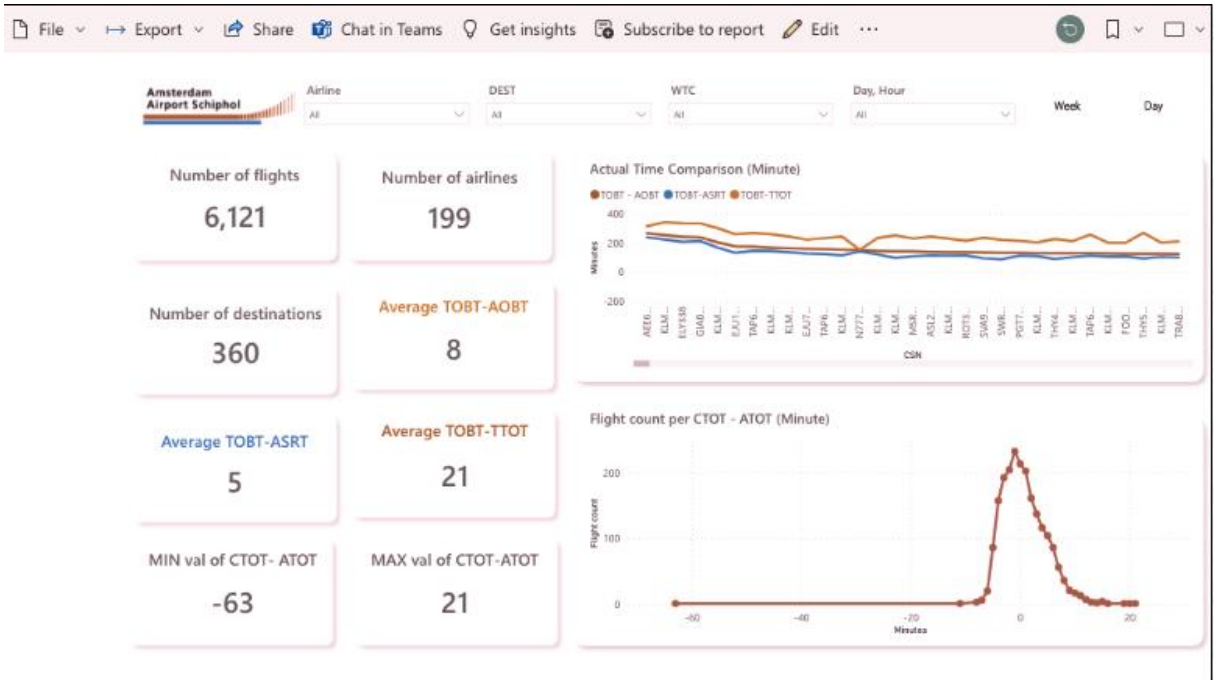

Fig 7.1.3.1.1 Green weak "Home" page

Fig 8.1.3.1.2 Green weak "Week" page

Fig 9.1.3.1.3 Green weak "Day" page

4.1.3.2 Blind

Fig 10.1.3.2.1 Green blind "Home" page

Fig 11.1.3.2.2 Green blind "Week" page

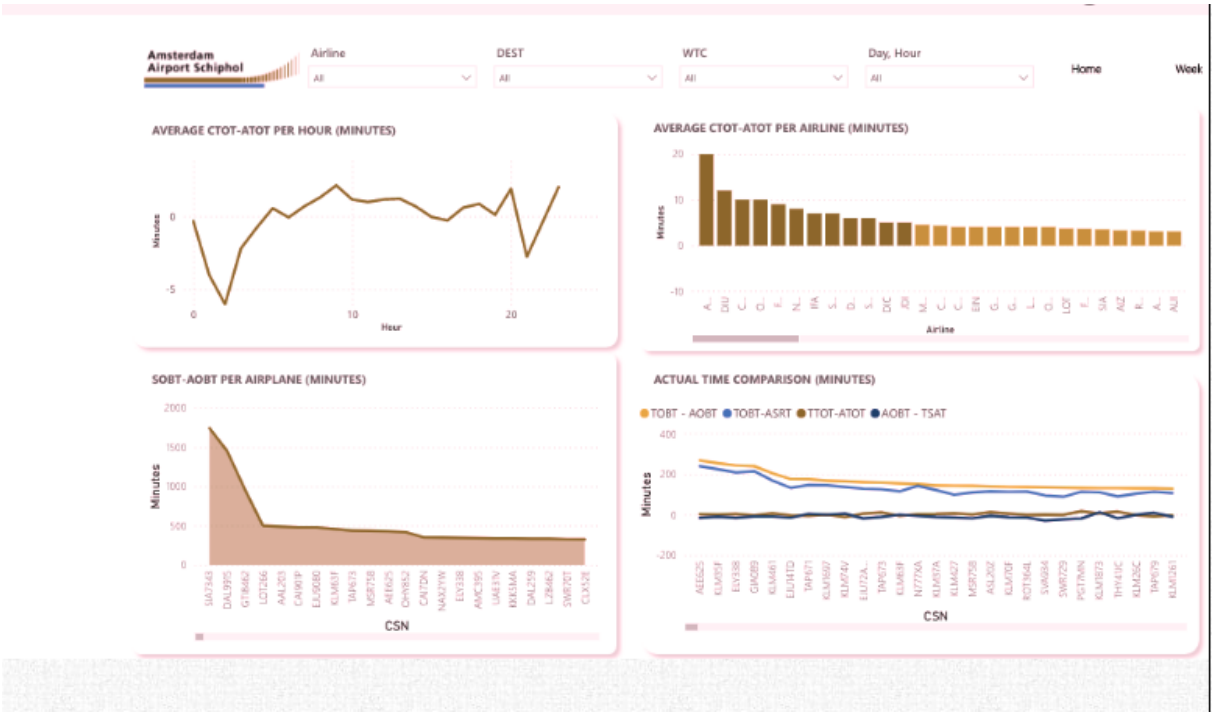

Fig 12.1.3.2.3 Green blind "Day" page

4.1.4 Blue

4.1.4.1 Weak

Fig 13.1.4.1.1 blue weak "Home" page

Fig 14.1.4.1.2 blue weak "Week" page

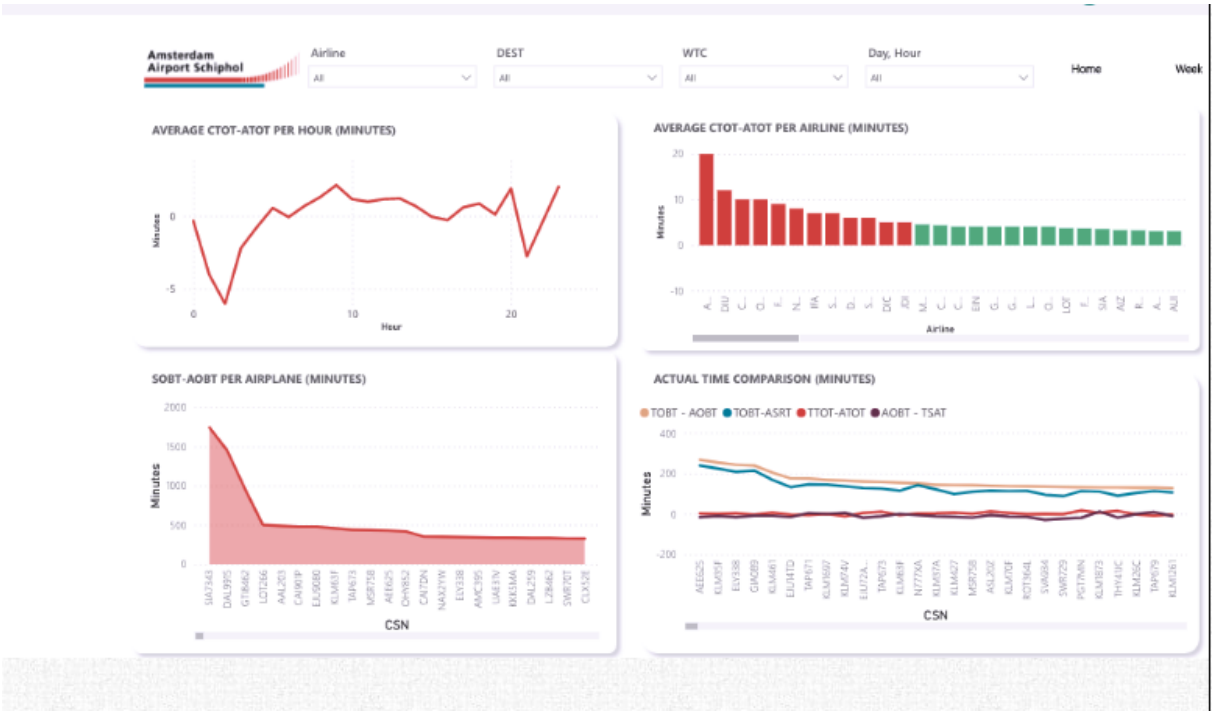

Fig 15.1.4.1.3 blue weak "Day" page

4.1.4.2 Blind

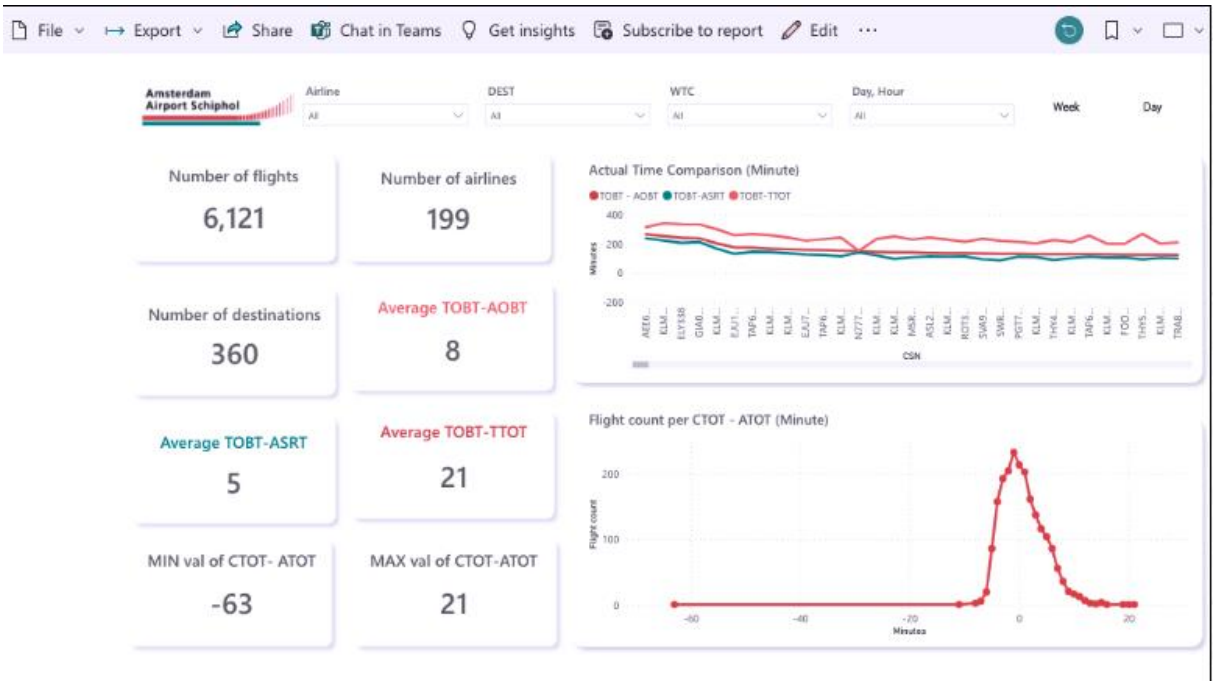

Fig 16.1.4.2.1 blue blind "Home" page

Fig 17.1.4.2.2 blue blind "Week" page

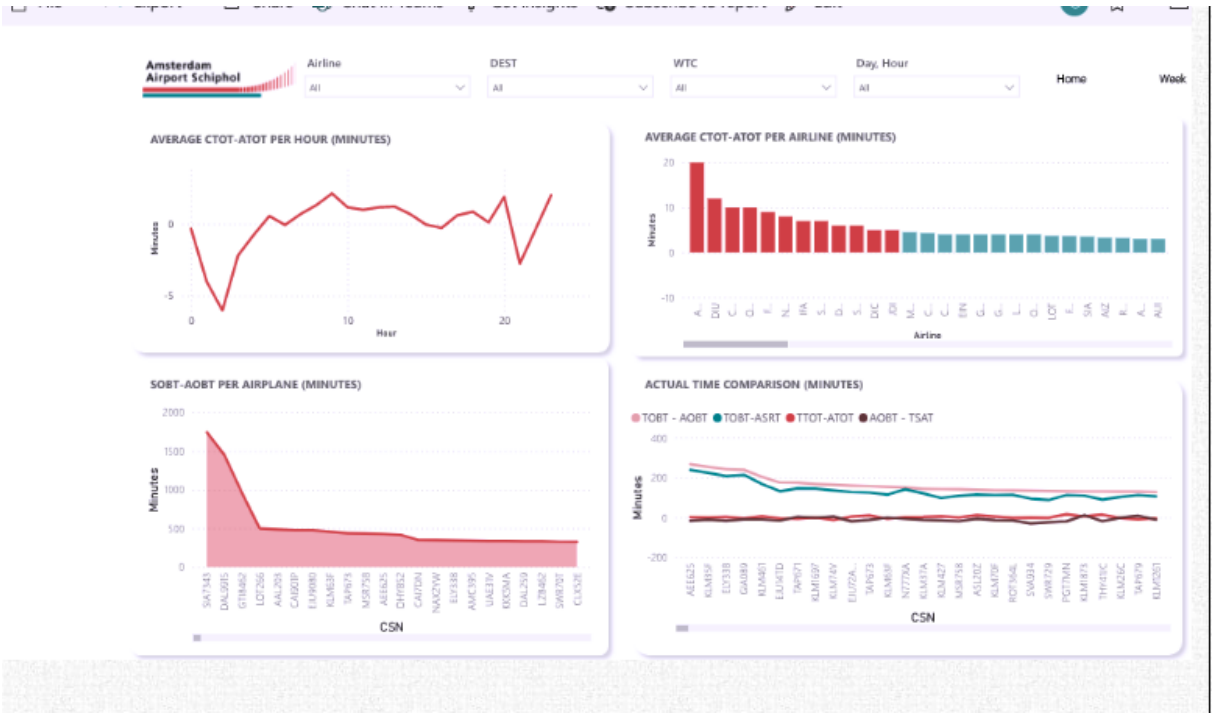

Fig 18.1.4.2.3 blue blind "Day" page

In conclusion, it is important to consider different types of colour blindness when choosing colours for graphics in the dashboard. The use of high contrast colour combinations and alternative visual aids can help ensure that information is easily understood by all users, regardless of colour blindness.

4.2. Gender Ideology

The design and development of a dashboard for the aerospace industry is based solely on industry requirements, the tasks that the board must perform, and user qualifications. The gender of users is not considered, since all professionals in the aerospace industry are expected to have the required qualifications and skills to carry out their work regardless of gender.

The final users of this dashboard are expected to be from multiple departments and areas of the airport, from border control to air traffic and many others involved in the different tasks of the airport management, so even though it's designed with a specific type of user in mind, concessions are made having in mind the different profiles of professionals that will or might have to use it.

In conclusion, the design and development of the dashboard should not consider the gender of users. All qualified professionals must be able to use the necessary tools to carry out their work effectively.

5. Legal aspects

Compliance with laws and regulations on the completion and result of a final grade project is important to ensure that the project is conducted ethically and legally. You will take them on the intellectual and industrial property, the protection of the technological sector and the special relevant in this context.

Intellectual property laws protect the rights of creators and inventors, giving them control over how their work is used and shared. This includes copyright, patent and trademark laws. It is important to ensure that copyrighted materials used in the project are properly cited and permission is obtained for the use of any patented or trademarked material.

Data protection laws regulate the collection, use and storage of personal data. This includes laws on privacy and data security. It is important to ensure that the personal data used in the project is collected and used in accordance with these laws, and that appropriate measures are taken to protect data from unauthorized access or violations.

Technology sector regulations are made to protect the interests of consumers and workers, and it is important to comply with these laws in the project, this may include laws related to consumer protection, privacy and security.

When using cloud tools like Power BI, Google Drive, and Google Collaboratory for project development, several legal aspects should be considered. Ensure compliance with data privacy laws such as GDPR, review user agreements, clarify data ownership, and comply with industry-specific regulations like HIPAA or PCI-DSS. Assess security measures, backup and disaster recovery policies, and protect intellectual property rights. Consider data storage locations, cross-border transfers, and understand data retention and deletion options. Determine the legal jurisdiction governing your use of these cloud tools. By addressing these legal considerations, you can mitigate risks and ensure compliance while leveraging the benefits of cloud technology for your project.

6. Bibliography

[1] "Color Blind Vision Simulator | Color Blind Glasses Simulator". Pilestone Inc. https://pilestone.com/pages/color-blindness-simulator-1 (accessed: January 27, 2023).

[2] "Colorblind Web Page Filter Testing Tool & Simulator | Toptal®." Toptal - Hire Freelance Talent from the Top 3%. https://www.toptal.com/designers/colorfilter (accessed: January 27, 2022)

[3] "Coblis — Color Blindness Simulator – Colblindor (2023)." Available at: https://www.color-blindness.com/coblis-color-blindness-simulator/ (Accessed: 11 June 2023).