

SURVEY

The motivation of this study is to determine the schedule for the new route link between Istanbul and Stockholm, which is included in an airline schedule for a network carrier.



For prioritizing new schedules and select the most suitable one, it is necessary to evaluate them on different criteria, previously defined by airline company experts. Being aware that you have an in-depth knowledge about this topic, this questionnaire aims to evaluate the importance of such criteria in order to make a proper decision. These criteria are described below:

- (1) **Passenger schedule preference (C_1):** It is defined as the time preference of the passenger for an alternative schedule. This criterion is composed by several sub-criteria:
 - a. C_{11} : *Hub local departure time*: Scheduled time of departure of a flight from hub which shows the doors closing time at the gate.
 - b. C_{12} : *Dest local arrival time*: Scheduled time of arrival of a flight to spoke which shows the doors opening time at the gate.
 - c. C_{13} : *Dest local departure time*: Scheduled time of departure of a flight from spoke airport which shows the doors closing time at the gate.
 - d. C_{14} : *Hub local arrival time*: Scheduled time of arrival of a flight to hub which shows the doors opening time at the gate.
- (2) **Competition (C_2):** Competition criterion reflects the effects of the other schedules on the same city pair. Other schedule could belong a competitor airline or it could be the

current schedule of the examined airline schedule. This criterion is composed by several sub-criteria:

- a. *C₂₁: Schedule time of competitor airlines:* The aim of this criterion is to present the competitiveness of the alternative schedule by comparing with other airlines' schedule that serves the same city pair (IST-ARN-IST route).
- b. *C₂₂: Cannibalization effect current schedule:* The aim of this criterion is to show the deterioration of the alternative schedules by comparing with current schedule of the case airline on the IST-ARN route. ie, Case airline has 3 flights on IST ARN route. Alternative schedule will have effect on the local and transfer passenger demand on the other flights of the examined airline. Alternative flights will have its own demand and it will also steal market share from competitors and current schedule of the airline.

(3) **Slot availability (C₃):** Slot is defined as a landing and departing permission from airport authority to use the airport, runway and terminal for a specific time range.

- a. *C₃₁: Hub slot availability:* Probability of having a slot at the hub airport (IST) at planned schedule time.
- b. *C₃₂: Dest slot availability:* Probability of having a slot at the spoke airport (ARN) at planned schedule time.

(4) **Connection (C₄):** Connection criterion is a measure for connectivity of the alternative schedule at the IST airport and ARN airport within a time window. This time window starts with minimum connection time (1 hour) until 12 hours for a connection. High number of connections creates more demand for the planned schedule, therefore it is very important for a profitable schedule.

- a. *C₄₁: # of weekly inbound connection:* An Inbound connection is that flights are arriving to hub and feeding the connection of the specified destination in terms of passenger volume.
- b. *C₄₂: # of weekly outbound connection:* An Outbound connection is that flights are departing from hub and defeeding the connection of the specified arrival in terms of passenger volume.
- c. *C₄₃: # of weekly codeshare connectivity:* A codeshare connection is a connection that has at least a carrier change and a flight change in the itinerary with a codeshare partner airline.
- d. *C₄₄: dep + arr connection potential:* Total number of O&D market volume in terms of passenger.

PART 1: HOW TO FILL DE QUESTIONNAIRE

The respondent will use the following scale of values to give their opinions:

1	Equal importance
3	Moderate importance
5	Strong importance
7	Very strong importance
9	Extreme importance

The values **2, 4, 6** and **8** are **intermediate values** that can also be used to give opinions.

In the next parts, the respondent will be asked to:

- A. Choose the **most important criterion, C+** according your expertise, and then, compare the latter with the other criteria indicating how much more important C+ is compared to the other criteria (because these cannot be better than the best).

Therefore, the comparisons are asked by the following table:

Most important criterion	C1	C2	C3	...
C+				

- A. Choose the **least important criterion, C-** according your expertise, and then, compare the other criteria with the latter indicating how much more important are the other criteria compared to C- (because they cannot be worse than the worst).

Therefore, the comparisons are asked by the following table:

Least important criterion	C-
C1	
C2	
C3	
...	

In order for the data to be valid for the questionnaire, it is important to avoid inconsistencies when making comparisons between criteria in order to obtain reliable results. Therefore, it is important to understand the following:

- The criterion selected as most important, **C+**, **will be always more important than any other criterion.**
- Any criterion compared to the least important criterion, **C-**, **will be always more important than C-**, which is the worst criterion
- The preference of **C+** over **C-** **will be always greater** than that of any other criterion over the worst.
- The preference of **C+** over itself or **C-** over itself **will be always 1.**

PART 2: GENERAL CRITERIA IMPORTANCE

Considering the goal (selecting the best schedule), select the MOST IMPORTANT criterion from the four general criteria (first line), and insert it in the most left-hand side cell of the second row (green color).

Now use a number between 1 and 9 to show the preference of your MOST IMPORTANT criterion over the other criteria.

Most important criterion	C ₁	C ₂	C ₃	C ₄

Considering the goal (selecting the best schedule), select the LEAST IMPORTANT criterion from the four general criteria (first line), and insert it in the top cell of the second column (red color).

Now use a number between 1 and 9 to show the preference of the criteria (first column) over the LEAST IMPORTANT criterion

Least important criterion						
C ₁						
C ₂						
C ₃						
C ₄						

PART 3: SUB-CRITERIA IMPORTANCE FOR *Passenger schedule preference (C₁)*

Considering the goal (selecting the best schedule), select the MOST IMPORTANT sub-criterion from the four sub-criteria (first line), and insert it in the most left-hand side cell of the second row (green color).

Now use a number between 1 and 9 to show the preference of your MOST IMPORTANT criterion over the other criteria.

Most important criterion	C _{1.1}	C _{1.2}	C _{1.3}	C _{1.4}

Considering the goal (selecting the best schedule), select the LEAST IMPORTANT criterion from the four general criteria (first line), and insert it in the top cell of the second column (red color).

Now use a number between 1 and 9 to show the preference of the criteria (first column) over the LEAST IMPORTANT criterion

Least important criterion						
C_{1.1}						
C_{1.2}						
C_{1.3}						
C_{1.4}						

PART 4: SUB-CRITERIA IMPORTANCE FOR *Competition* (C₂)

Considering the goal (selecting the best schedule), select the MOST IMPORTANT sub-criterion from the four sub-criteria (first line), and insert it in the most left-hand side cell of the second row (green color).

Now use a number between 1 and 9 to show the preference of your MOST IMPORTANT criterion over the other criteria.

Most important criterion	C_{2.1}	C_{2.2}

Considering the goal (selecting the best schedule), select the LEAST IMPORTANT criterion from the four general criteria (first line), and insert it in the top cell of the second column (red color).

Now use a number between 1 and 9 to show the preference of the criteria (first column) over the LEAST IMPORTANT criterion

Least important criterion						
C_{2.1}						
C_{2.2}						

PART 5: SUB-CRITERIA IMPORTANCE FOR *Slot availability* (C₃)

Considering the goal (selecting the best schedule), select the MOST IMPORTANT sub-criterion from the four sub-criteria (first line), and insert it in the most left-hand side cell of the second row (green color).

Now use a number between 1 and 9 to show the preference of your MOST IMPORTANT criterion over the other criteria.

Most important criterion	C_{3.1}	C_{3.2}

Considering the goal (selecting the best schedule), select the LEAST IMPORTANT criterion from the four general criteria (first line), and insert it in the top cell of the second column (red color).

Now use a number between 1 and 9 to show the preference of the criteria (first column) over the LEAST IMPORTANT criterion

Least important criterion						
C_{3.1}						
C_{3.2}						

PART 6: SUB-CRITERIA IMPORTANCE FOR *Connection* (C₄)

Considering the goal (selecting the best schedule), select the MOST IMPORTANT sub-criterion from the four sub-criteria (first line), and insert it in the most left-hand side cell of the second row (green color).

Now use a number between 1 and 9 to show the preference of your MOST IMPORTANT criterion over the other criteria.

Most important criterion	C_{4.1}	C_{4.2}	C_{4.3}	C_{4.4}

Considering the goal (selecting the best schedule), select the LEAST IMPORTANT criterion from the four general criteria (first line), and insert it in the top cell of the second column (red color).

Now use a number between 1 and 9 to show the preference of the criteria (first column) over the LEAST IMPORTANT criterion

Least important criterion						
C_{4.1}						
C_{4.2}						
C_{4.3}						
C_{4.4}						