

airECONsim - Tutorial



**ECONOMICS
GAMES**

- You have been hired by an airline, to manage the pricing of flights on a given route. On this route, you have only one competitor.
- For now, you have no control over the flight plan (you will, later).
- You have to choose the price of seats on flights that will leave at a given date (in 3 months exactly). The two airlines each have 1200 seats for sale on RoundTrips on this route at that time.

Choix du prix

Round 1/2 - phase 1/3 (période de pointe)

valider

Note Au début du jeu, si chaque équipe choisit un prix de 50 lors de chaque phase, la demande sur le round sera d'environ 2100 sièges en période de pointe et de 1300 en période creuse.

Résultats

Bénéfices cumulés

Alpha Airlines 0,00 €

Air Betland 0,00 €

LIGNES

⚙️ Aéroport A / Aéroport B

Ligne: Aéroport A / Aéroport B

Prix de vente

Paramètres		
	Air Betland	Alpha Airlines
Sièges (disponibles)	1200 (répartis sur 3 A/R).	1200 (répartis sur 3 A/R).
Coûts variables (par passager)	4,00 €	4,00 €
Finances		
	Air Betland	Alpha Airlines
Coûts Fixes payés en fin du round	44 380,00 €	44 380,00 €

Note A ces coûts s'ajoutent des coûts fixes de 4000.0€ par hub

Choose the price of your tickets for the first phase (from 3 months to 1 month and a half before departure)

First phase sales: from 3 months to 1.5 month before departure

- Select 54€ as the price at which you will start selling tickets, and validate.
- Do not think too much for the moment, the goal is to get used to the interface.
- Scores will be reset next year.

Résultats de la compétition

Round 1/2 - phase 1/3 (période de pointe)

Phase Suivante

Résultats

Bénéfices cumulés

Alpha Airlines 0,00 €

Air Betland 0,00 €

LIGNES

⚙️ Aéroport A / Aéroport B

Ligne: Aéroport A / Aéroport B



Résultats de la vente

	Air Betland	Alpha Airlines
Prix de vente	54,00 €	43,00 €
Sièges vendus	360 / 1200	461 / 1200
Nombre de Vols	3 AR.	3 AR.

Finances

	Air Betland	Alpha Airlines
Revenus depuis le début du round	19 440,00 €	19 823,00 €
Coûts Fixes payés en fin du round	44 380,00 €	44 380,00 €
Coûts variables sur le round	1 440,00 €	1 844,00 €

Air Betland has sold 360 seats at €54,

Alpha Airlines has chosen a price of €43 and has sold 461 seats.

(You will not have exactly the same results, robot decisions and sales are partly random)

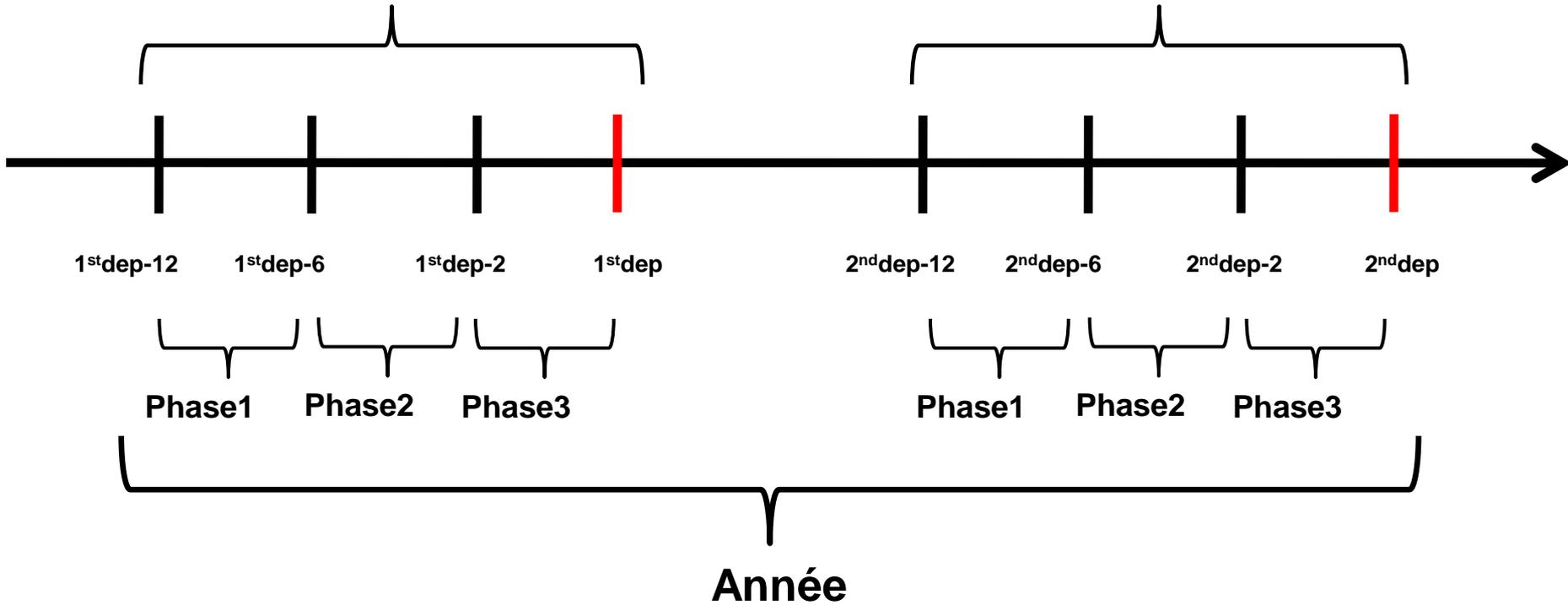
You are selling seats for the same flight over 3 phases

- But this is only the first phase, you still have one month and a half (**and 2 phases**) before departure.
- You can choose a new price for phase 2, based on the number of remaining seats on your flights and on your competitors flights, ...
- Proceed to the second phase, ranging from one month and a half before departure to 2 weeks before departure (we will analyse results later in the tutorial)

Time Line

Round 1

Round 2



Departures are in red, price choices in black

Résultats

Bénéfices cumulés

Alpha Airlines 0,00 €

Air Betland 0,00 €

Choix du prix

Round 1/2 - phase 2/3 (période de pointe)

valider

Note Au début du jeu, si chaque équipe choisit un prix de 50 lors de chaque phase, la demande sur le round sera d'environ 2100 sièges en période de pointe et de 1300 en période creuse.

LIGNES

✎ Aéroport A / Aéroport B

Ligne: Aéroport A / Aéroport B

Prix de vente

61

Air Betland	360 (54,00 €)	840
Alpha Airlines	461 (43,00 €)	739

Paramètres

	Air Betland	Alpha Airlines
Sièges (disponibles)	840 (répartis sur 3 A/R).	739 (répartis sur 3 A/R).
Coûts variables (par passager)	4,00 €	4,00 €

Finances

	Air Betland	Alpha Airlines
Coûts Fixes payés en fin du round	44 380,00 €	44 380,00 €

You are now in the second phase of sale: flights departure gets closer and your tickets and those of your competitors are selling quite well: Choose a new and higher price: 61.

Résultats de la compétition

Round 1/2 - phase 2/3 (période de pointe)

Phase Suivante

Résultats

Bénéfices cumulés

Alpha Airlines 0,00 €

Air Betland 0,00 €

LIGNES

Aéroport A / Aéroport B

Ligne: Aéroport A / Aéroport B



Résultats de la vente

	Air Betland	Alpha Airlines
Prix de vente	61,00 €	45,00 €
Sièges vendus	338 / 826	384 / 777
Nombre de Vols	3 AR.	3 AR.

Finances

	Air Betland	Alpha Airlines
Revenus depuis le début du round	39 318,00 €	36 738,00 €
Coûts Fixes payés en fin du round	44 380,00 €	44 380,00 €
Coûts variables sur le round	2 848,00 €	3 228,00 €

Results for the second phase: Air Betland has sold 338 seats at €61 and Alpha Airlines has sold 384 seats at €45. There are only 488 and 393 seats to sell for the third and last phase.

- The third phase, corresponds to the last 2 weeks before departure and is the last opportunity to sell remaining tickets. After that phase, planes will take-off and unsold seats are lost.
- Choose a price of € 90 for this third phase.

Résultats de la compétition

Round 1/2 - phase 3/3 (période de pointe)

Phase Suivante

Résultats

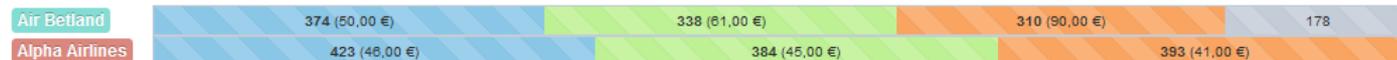
Bénéfices cumulés

Air Betland	14 750,00 €
Alpha Airlines	-329,00 €

LIGNES

⚙️ Aéroport A / Aéroport B

Ligne: Aéroport A / Aéroport B



Résultats de la vente

	Air Betland	Alpha Airlines
Prix de vente	90,00 €	41,00 €
Sièges vendus	310 / 488	393 / 393
Nombre de Vols	3 AR.	3 AR.

Finances

	Air Betland	Alpha Airlines
Revenus depuis le début du round	67 218,00 €	52 851,00 €
Coûts Fixes payés en fin du round	44 380,00 €	44 380,00 €
Coûts variables sur le round	4 088,00 €	4 800,00 €
Bénéfices sur la ligne sur le round (hors	18 750,00 €	3 671,00 €

In the 3rd and last phase, Air Betland has only sold 310 seats out of the 488 that were still empty at the end of the second phase → Its flights take-off with 178 empty seats.

Remark

- Air Betland's flights take-off with 178 empty seats.
- Is it a shame ?
 - Yes and No. Take a look at the profits in the upper-left corner of the screen.

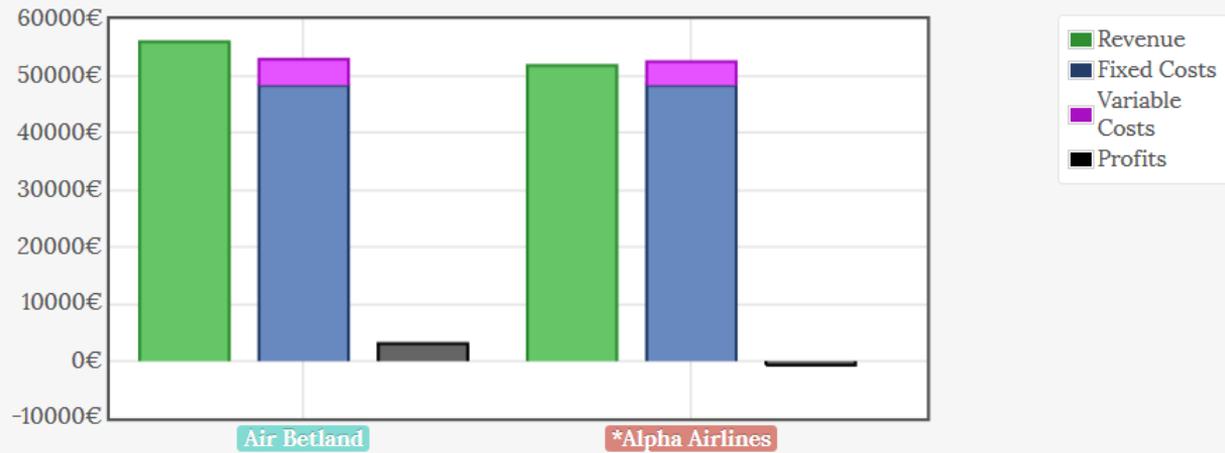
Year 1 - Round 1's Results

Scores

*Alpha Airlines 0 €

Air Betland 0 €

Ranking	Team	Round Profits	Sales	Average Price	Load Factor	RoundTrip	Plane Use
1	Air Betland	3 085 €	1139	49 €	94.9 %	3	100.0 %
2	*Alpha Airlines	-678 €	1037	50 €	86.4 %	3	100.0 %



Next

Now you can check synthetic results ...

It's up to you!

Proceed to the second round

You are now selling seats for a new departure date

- You are back to the first phase (of a new round). Once more, you have 1200 seats to sell (on flights that are currently empty).
- Here is some info:
 - If both airlines choose a price of €50 during all 3 phases, each company will sell "approximately" 350 to 400 seats per phase.
 - For each passenger, you will pay €4 airport taxes.
 - The remaining costs are fixed (in the short run) and do not depend on the number of tickets sold: €48380.

Fixed costs/Variable costs

- In the short-run, part of the cost (here 48380€) does not depend on the number of seats that are sold and you will have to pay that, whatever your choices. These costs are called « fixed costs »
- They may come from aircraft leasing, wages, fuel, taxes that are based on the number of flights (and not on the number of passengers), ..., that is from costs that depend on decisions that can be modified in the long or middle-run, but not in the short-run (if you are leasing an aircraft, you can not cancel the lease at the last moment without paying a penalty).
- (You will soon have control over long-run decisions, but not yet)

Average cost

- For your information, if you sell 1000 out of your 1200 seats, the average cost by passenger will be about € 52.38
- If you sell all of your 1200 seats, the average cost by passenger will be € 44.32
- On the other hand, each **additional** seat sold will only increase costs by € 4.
- So, what should you do if a tour operator contacts you one day before departure and offers to buy 100 seats that have no chance to be sold, for a price of €15?

Business/Leisure passengers

- Last info: The closer you get to the departure, the greater the proportion of "business" passengers
- On the average, business passengers pay less attention to price than leisure passengers, and often know later that they have to travel (or at what time they have to travel)
 - (price tends to be less important for them when compared to other characteristics, such as the convenience of the flights)
- So, what should you do with this information?

- It's up to you to choose prices over the three phases of round 2. Try and beat your robot-competitor!
- Then proceed to Year 2.
- Remark: At any time in the tutorial or in the game, you can check all past (synthetic and detailed) results, by clicking on « Results » in the title bar.
- And do not hesitate to come back to try new decisions and compare outcomes.

Synthetic statistics that are available in the results pages.

Previous Decision

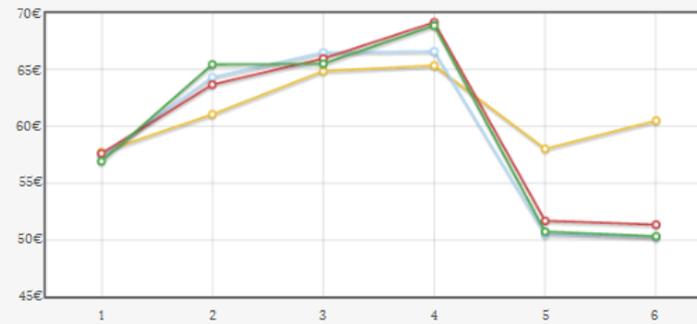
Charts

- Average Price
- Industry Profit
- Available Seats
- Seats sold
- Load Factor
- Frequency Differentiation
- Comfort Differentiation
- RoundTrips
- Average Seats per Plane
- Average space between seats
- Consumer Surplus
- Consumer + Airline Surplus
- WTP for the seats sold
- Airline Revenue
- Airline Cost
- Average Cost per seat sold

Markets

- Route 1
- Route 2
- Route 3
- Route 4

Average Price



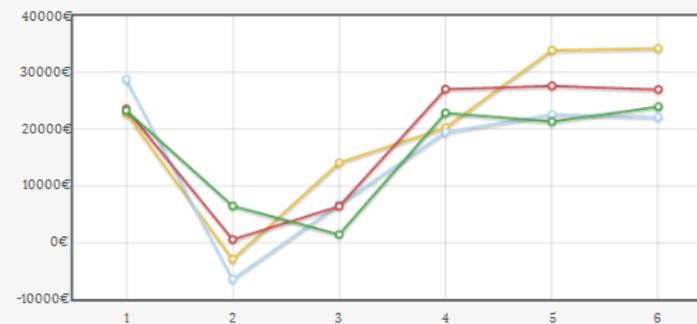
(year)

Markets

- Route 1
- Route 2
- Route 3
- Route 4

Q Zoom: Use the mouse to zoom on the chart

Industry Profit



(year)

Markets

- Route 1
- Route 2
- Route 3
- Route 4

Q Zoom: Use the mouse to zoom on the chart

Available Seats



Markets

- Route 1
- Route 2
- Route 3
- Route 4

Q Zoom: Use the mouse to zoom on the chart

Second Year

Peak/Off-peak Periods ...

Résultats de la compétition

Round 2/2 - phase 2/3 (période creuse)

Phase Suivante

Résultats

Bénéfices cumulés

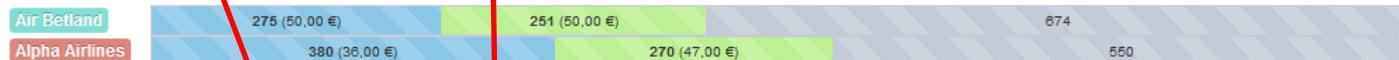
Alpha Airlines 39 448,00 €

Air Betland 20 046,00 €

LIGNES

Aéroport A / Aéroport B

Ligne: Aéroport A / Aéroport B



Résultats de la vente

	Air Betland	Alpha Airlines
Prix de vente	50,00 €	47,00 €
Sièges vendus	251 / 925	270 / 820
Nombre de Vols	3 AR.	3 AR.

Finances

	Air Betland	Alpha Airlines
Revenus depuis le début du round	26 300,00 €	26 370,00 €
Coûts Fixes payés en fin du round	44 380,00 €	44 380,00 €
Coûts variables sur le round	2 104,00 €	2 600,00 €

Phase Suivante

freebox_XOLDKO
Accès Internet

From now on, the second round of each year is in off-peak period: Demand is much lower (about 2/3 of standard demand)

Third Year

First change: Flight Plan

Frequency choice

- This year, you get promotion and now select the number of RoundTrips during peak and off-peak periods (for the type of aircraft, wait for next year).
- Consequently, some of the costs that were fixed (€40380 of the €48380) become variable (in the long-run) and now depend on the number of RoundTrips that you plan each round:
 - Each plane can make one RoundTrip in the peak period round and also one RoundTrip in the off-peak period round (or not, it's up to you to decide if you use the plane during off-peak periods).
 - This corresponds to 400 seats to sell for every RoundTrip.
 - Each RoundTrip costs €9680 and the renting a plane costs €7560 a year
 - You must rent a plane over the entire year even if you do not use it off-peak.

This is really not expensive!

- For curious players, let me precise that the €7560 for leasing an aircraft over the year, must be related to the fact that a «year» in the game only has two rounds (i.e. two departure days). And so, each aircraft only operates two roundtrips over the « year» max.
- This taken into account, orders of magnitude are preserved.

Année: 2015 - Choix de la flotte

Résultats

Bénéfices cumulés

Alpha Airlines 26 762,00 €

Air Betland 7 638,00 €

Ligne	Concurrents sur la ligne	Nombre d'A/R par round		Avion
		en période de pointe	en période creuse	
Aéroport A / Aéroport B	Alpha Airlines	3	3	A320

Valider mes choix

L'année dernière:

Ligne Aéroport A / Aéroport B			
Compagnie	Nombre d'A/R par round		Avion
	en période de pointe	en période creuse	
Air Betland	3 A/R (total de 1200 sièges)	3 A/R (total de 1200 sièges)	✈ A320
Alpha Airlines	3 A/R (total de 1200 sièges)	3 A/R (total de 1200 sièges)	✈ A320

Caractéristiques des avions:

Avion	Capacité (par A/R)	Coût annuel (cad pour 2 rounds)	Coût par A/R	Coût par passager
✈ A320	400	7 560,00 €	9 680,00 €	4,00 €

Coût par ligne exploitée: 4 000,00 €

Un Avion fait un A/R max par round. Si vous sélectionnez 5 A/R en période haute et 2 A/R en période basse en A320, il vous faudra donc louer 5 avions au total à l'année.

freebox_XOLDKO
Accès Internet

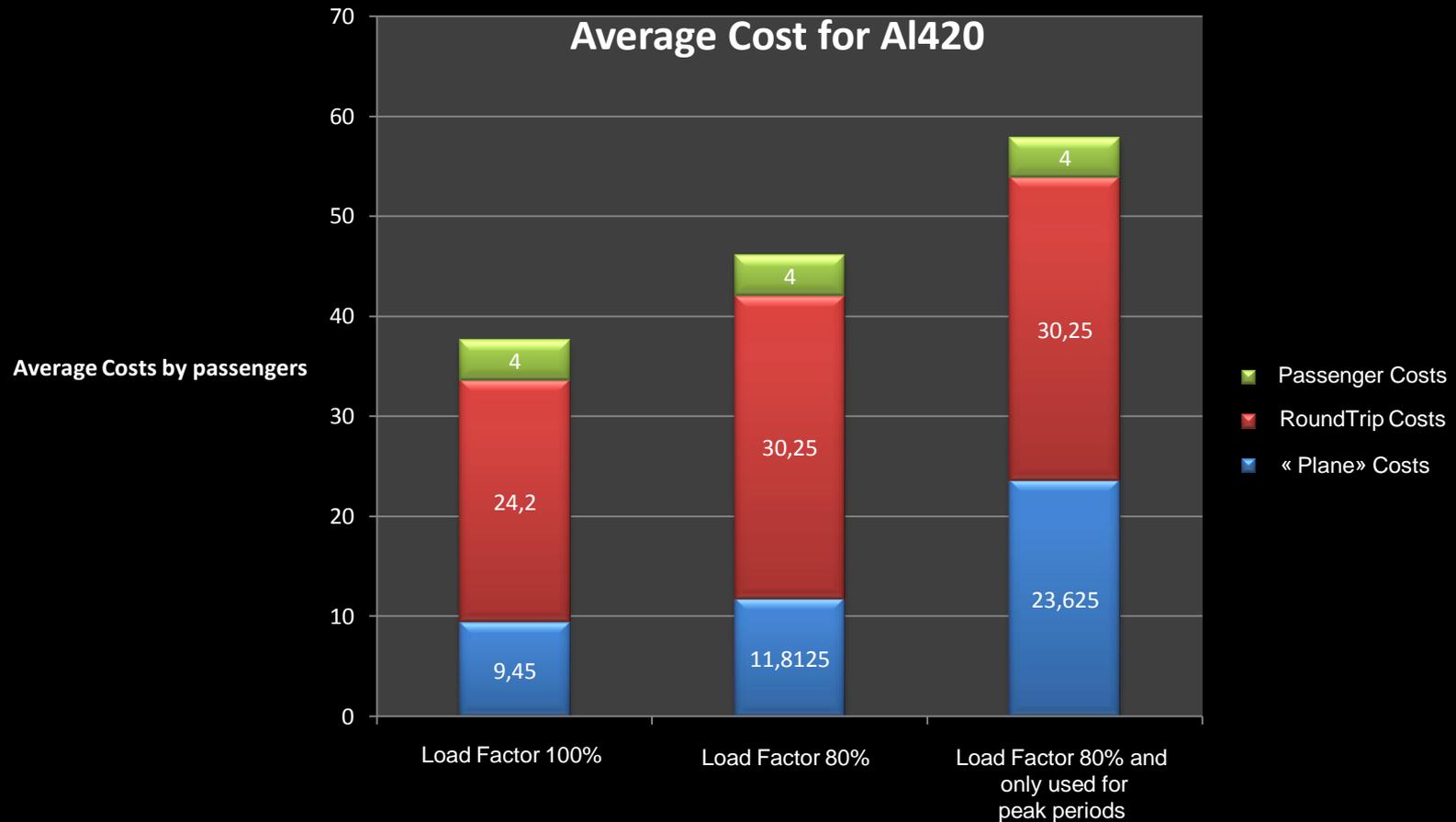
Choose the number of roundtrips in peak (round 1) and off-peak (round 2) period...

...Each plane can operate one roundtrip in peak period and also one round-trip in off-peak period (or not). Corresponding to 400 seats to sell by roundtrip. Each roundtrip costs 9680€ and renting a plane costs 7560€ a year

Frequency choice

- You must rent a plane over the entire year even if you do not use it off-peak.
- So, if you set two RoundTrips in the off-peak round and three RoundTrips during the peak round, you actually rent 3 planes for an annual cost of € 3*7560. However, one of the 3 planes will only be used during the peak round, so his full annual cost will be accounted to this round -> The costs for each round will therefore be:
 - $3*9680+2*(7560/2)+7560$ for the peak round
 - $2*9680+2*(7560/2)$ for the off-peak round
- The remaining costs amount to € 4 per passenger, plus € 8000 of route fixed cost each round (avoidable, only if you select 0 RoundTrips in peak AND off-peak period).
- Note that choosing 3 roundtrips in peak and in off-peak periods leads you to the exact same situation that in years 1 and 2.

Average Costs



Does not take into account the € 8000 of route fixed costs.

Impact of flight frequency on demand

- Each passenger has a different preferred departure time, and is willing to pay a little (or a lot) more to leave at a more convenient time for him.
- So sales do not only depend on price, but also on the number of roundtrips ...
- ...which is more sensitive for "business" passengers.
- You can visualize flights and passengers' preferred departure hours as being spread over a circle (that represents a day).

Impact of flight frequency on demand

- Passengers also value other characteristics that are not explicitly detailed in this game.
- For example, to the national flag... or to the distribution network...
- Consequently, if an airline operates 50 roundtrips, while its competitor operates only one, the second airline will still sell a little. You will not manage to capture the whole market.
- When you will play in the real game, you will not be able to operate « too many » roundtrips anyway (if only, because airports landing/take-off capacities are limited)

Year 3 - Round 1's Results

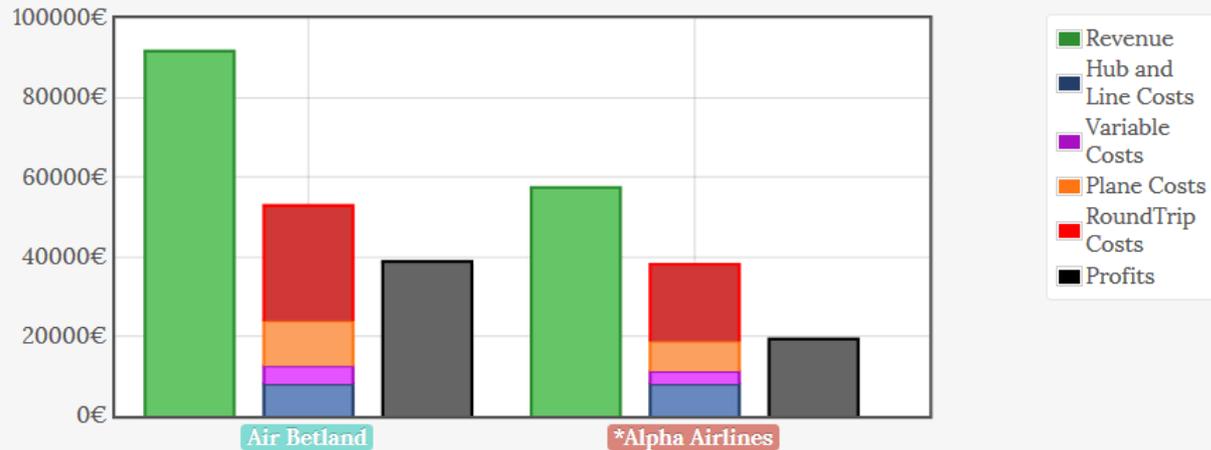
Scores

Air Betland 13 572 €

*Alpha Airlines -9 336 €

Ranking	Team	Round Profits	Sales	Average Price	Load Factor	RoundTrip	Plane Use
1	Air Betland	38 842 €	1135	81 €	94.6 %	3	100.0 %
2	*Alpha Airlines	19 330 €	800	72 €	100.0 %	2	100.0 %

Note Planes that are only used during one of the rounds have their full annual cost allocated to that round.



Next

Synthetic results are now a bit more precise

Third Year

Second change: Quotas and
second price

Quotas

- Second new feature in year 3, you can now choose a second price in case the tickets sell faster than expected:
- You may have already encountered the following situation: you have chosen a low price in the first stage and you are surprised to discover that your competitor has chosen a very high price. And you end up selling a lot more than what you would have liked ...
- **From now on, you can specify in each phase a sales quantity target above which you raise your prices to a higher level (that you choose).**

Choix du prix

Round 1/2 - phase 2/3 (période de pointe)

valider

Note Au début du jeu, si chaque équipe choisit un prix de 50 lors de chaque phase, la demande sur le round sera d'environ 2100 sièges en période de pointe et de 1300 en période creuse.

Résultats

Bénéfices cumulés

Alpha Airlines 108 090,00 €

Air Betland 7 638,00 €

LIGNES

Aéroport A / Aéroport B

Ligne: Aéroport A / Aéroport B

Prix de vente

70

Max de sièges à ce prix

350

Prix choisi ensuite

98



Paramètres

	Air Betland	Alpha Airlines
Sièges (disponibles)	1218 (répartis sur 4 A/R).	637 (répartis sur 3 A/R).
Coûts variables (par passager)	4,00 €	4,00 €

Finances

	Air Betland	Alpha Airlines
Coûts Fixes payés en fin du round	57 840,00 €	44 380,00 €
Coûts variables sur le round	1 536,00 €	2 252,00 €

freebox_XOLDKO
Accès Internet

Here, I specify that if at any time in the phase, I have sold more than 350 seats (at €70), then my price must automatically rise to €98 for the following customers.

Fourth Year

Aircraft Type

Aircraft Size.

Cost/Frequency Trade-Off

- From the fourth year, it is possible to choose between several types of aircraft.
- **The main trade-off: larger planes allow you to reduce the average cost if they are filled (saving a portion of the costs, wages, fees, etc ...) ... but involve less frequency if you want to keep the same total number of seats. And less frequency means less sales. It's up to you ...**

Fifth and Sixth Years

Last years before the real game
begins

The last years of the tutorial

- It's up to you to experiment... It's time to take risks and try (over)ambitious decisions:
 - If you want to try and get the whole demand by planning many flights and a very low price...
 - If you want to see how much demand is reduced if you plan only one flight instead of several...

The last years of the tutorial

- Did you try to let your competitor sell all its seats during the first two phases, in order to stay in a monopoly situation in the third phase?
 - Do you think that this would be interesting for you?
 - Do you think that it's easy?

The last years of the tutorial

- Realize that peak and off-peak profits are connected.
 - Sometimes, to make important profits during peak periods, you may find interesting to make decisions that will induce losses during off-peak periods (for example because the aircraft leased are not very convenient for off-peak demands)

The last years of the tutorial

- What's next?
 - After these experiments, you will have seen everything you need to compete against other human players over several routes, with new aircraft and with a few surprises!
 - with CO2 emissions and environmental policies, seat comfort, congested airports, route openings, mergers,...

<https://lud.io>

Air Transport Economics game

Energy Economics game

CO2 Emissions and Environmental Policy game

IO game

...



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