

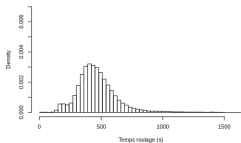
Progresses in data analysis an ABM

31/03/20

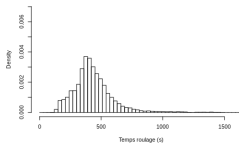
Data Analysis

- The Taxi Time distributions for different companies are different.

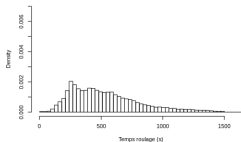
Distribution des temps de roulage
des avions EZY (Effectif :48514)



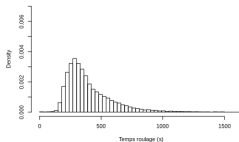
Distribution des temps de roulage
des avions EJU (Effectif :23854)



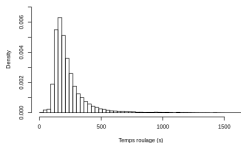
Distribution des temps de roulage
des avions FDX (Effectif :23834)



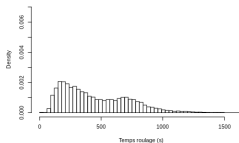
Distribution des temps de roulage
des avions VLG (Effectif :22255)



Distribution des temps de roulage
des avions DLH (Effectif :39914)



Distribution des temps de roulage
des avions BEE (Effectif :18650)



Company	Avarage Taxi Time
AFR	433 s
EZY	460 s
FDX	548 s

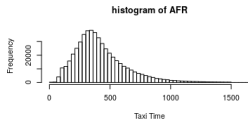
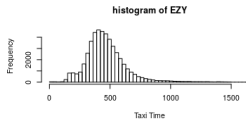
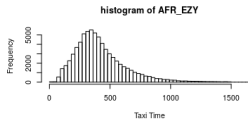
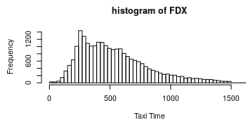
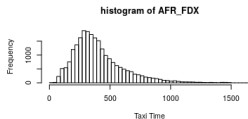
Data Analysis

Is taxi time dependant on the company or only on the hour of take off and landing?

- ▶ We sampled Air France flights (48,3% of total flights) based on the time distribution of movements for other companies, i.e. Easy Jet (6,52%) and FedEx (2,25%).

Results

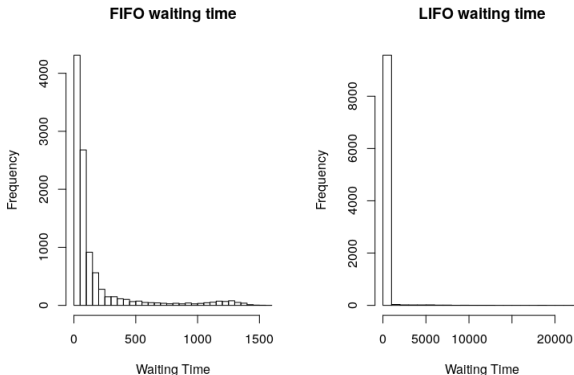
- The different movement's time distribution don't explain the variation in taxi time.



Company	Avarage Taxi Time
AFR	433 s
AFR-EZY	429 s
EZY	460 s
AFR-FDX	432 s
FDX	548 s

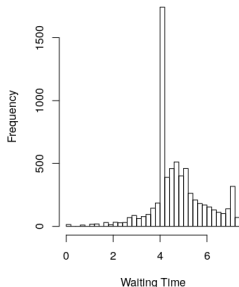
ABM Model: LIFO vs FIFO policy

We asked ourselves about how different policies in the outgoing traffic could change the waiting time at the runway. We experimented the first-in-first-out and last-in-first-out policies to see how the waiting time distribution changed.

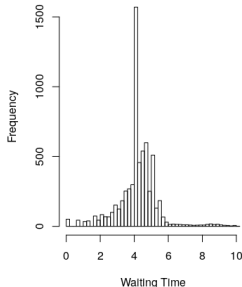


ABM Model: LIFO vs FIFO policy

FIFO waiting time (log scale)



LIFO waiting time (log scale)



Policy	Average Waiting Time
FIFO	149 s
LIFO	147 s

We see a peak in correspondance to the waiting time = 60 because in the simulation, when the plane arrives at the runway, it has a certain probability to have to stop and wait 60 seconds for another plane to land.