Marindex

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Outline

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5. Product Layout
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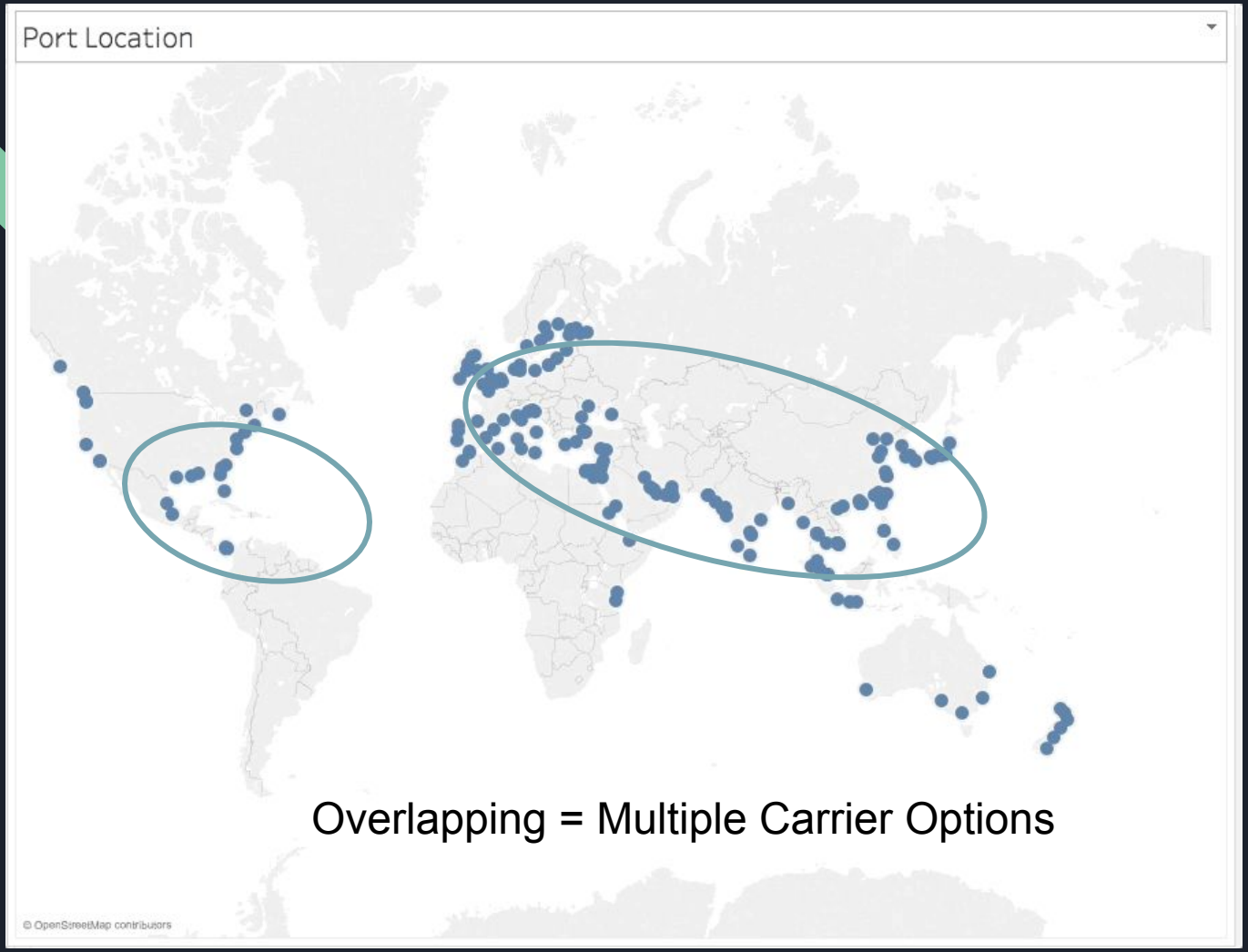
The Problem

- Multiple Carriers
- Need to Select
- But do not know which one to select
- No tools for comparison
- Information Gap

No	Port Name	Number of Carrier Passing
1	Bridgetown	2
2	Brisbane	15
3	Bristol	1
4	Buchanan	1
5	Buenaventura	14
6	Buenos Aires	13
7	Burgas	2
8	Busan	17
9	Busan New Port	1
10	Bushehr	1
11	Cabinda	2
12	Cagayan De Oro	3
13	Cagliari	12
14	Cai Mep	14

Multiple Carrier Options



Overlapping = Multiple Carrier Options

Solution: Marindex

- Marindex: An index (scoring) system to compare the carriers for a given route
- Purpose: Bridging the information gap between consignors and carriers
- Benefits:
  - Finding the **best carrier**
  - Connection with **end users** = easier to collect data
  - Market **Influence**

Mx

Business Model

- Target: Small/Medium Size Businesses
- Product type: Website with search engine
- Revenue Source: Advertisement fees
    - Google-like-strategy: when a customer searches a route, show advertisement

Key Performance Indicator

Speed

Time taken between the origin port and the destination port

Accuracy/Punctuality

Estimated time and CargoSmart's rcorded time

Reliability

Carrier's record and CargoSmart's record

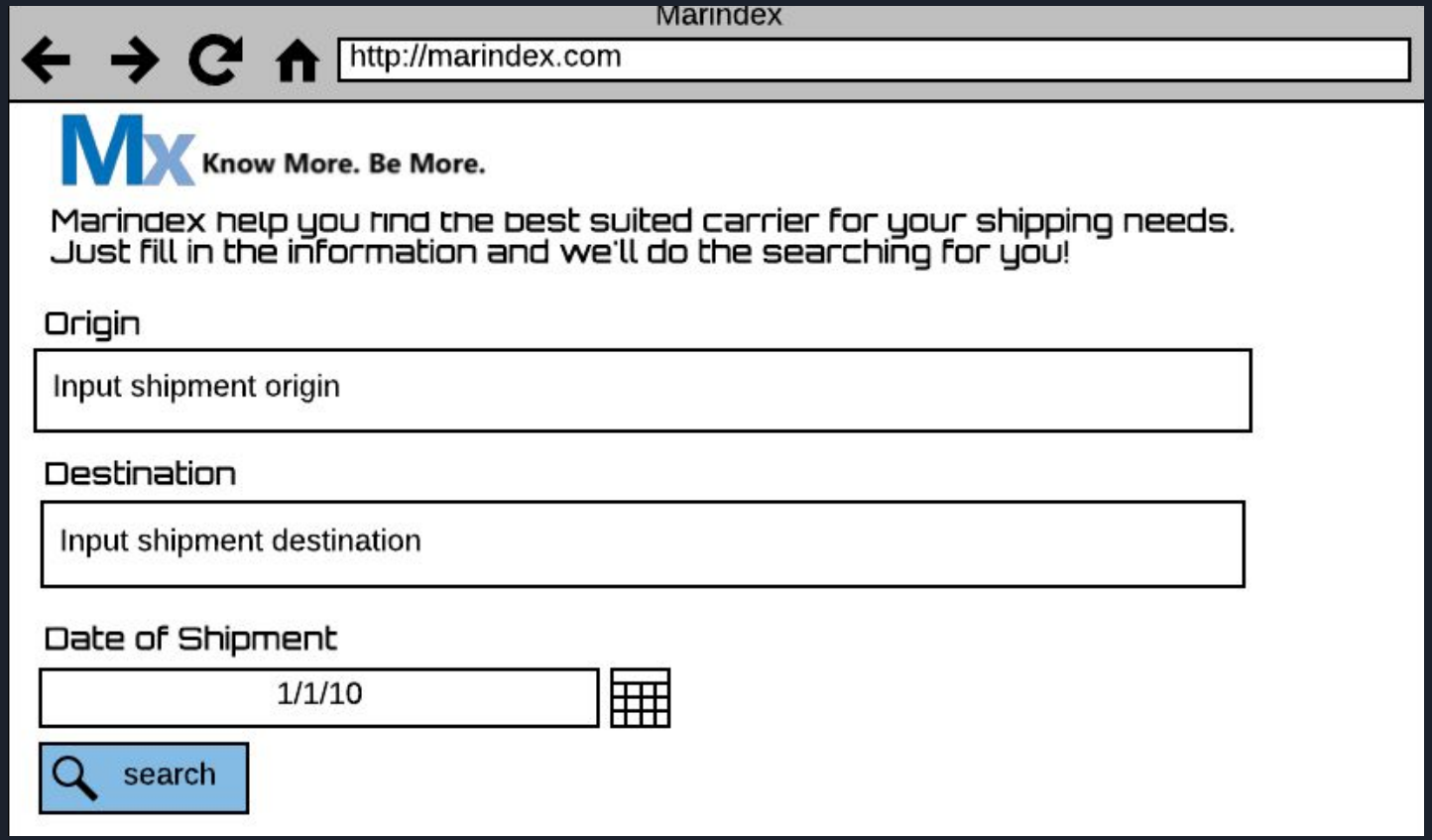
Index Calculation

$$I_{o,d,c} = 4.0 \times \frac{Tmax - T_{o,d,c,r}}{Tmax - Tmin} + 4.0 \times \frac{ACmax - AC_{o,d,c,r}}{ACmax - ACmin} + 2.0 \times \frac{RLmax - RL_{o,d,c,r}}{RLmax - RLmin} \quad \forall c \in C$$

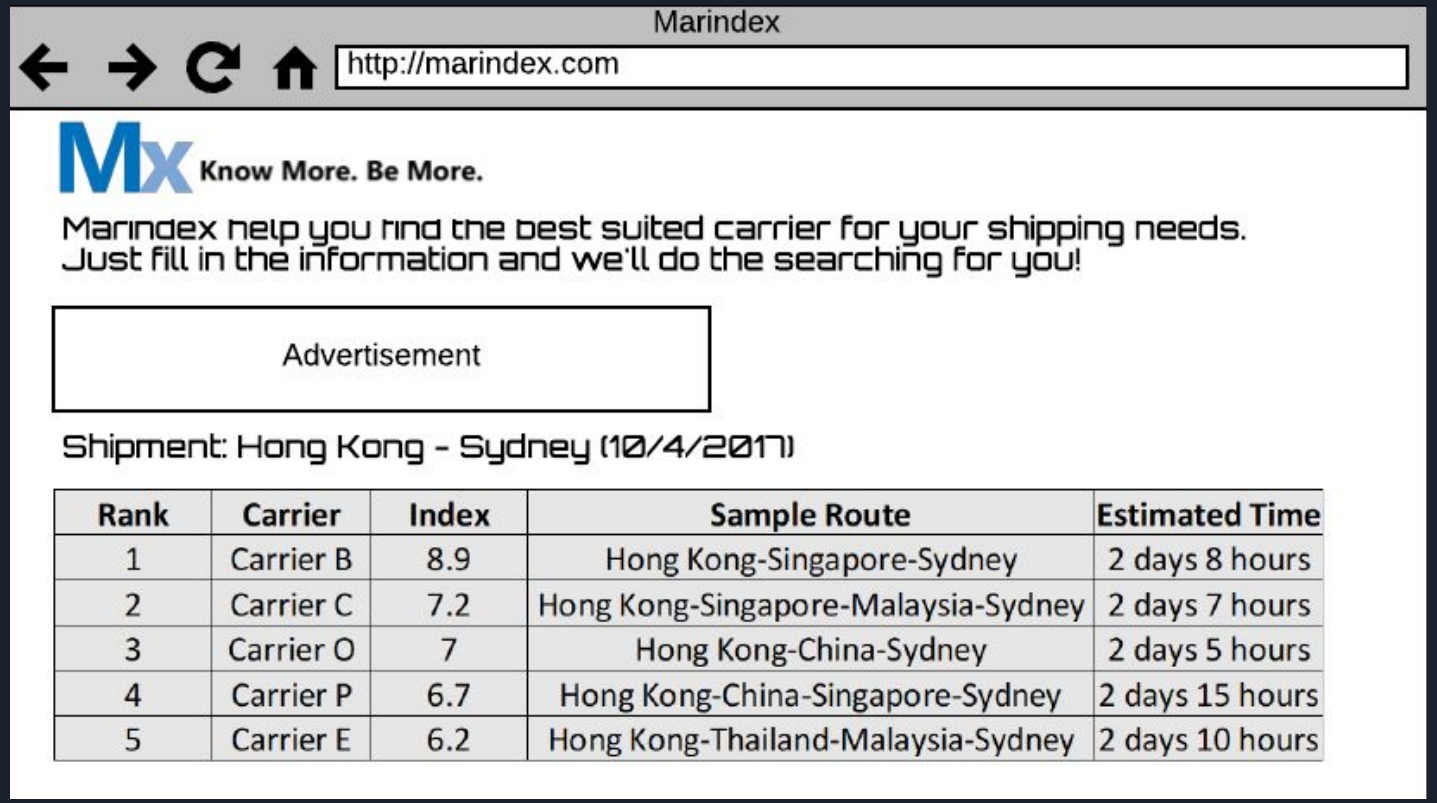
$$T_{o,d,c,r} = \frac{\sum_{v \in V} tmin_{o,d,c,r,t}}{n_V} \quad \forall v \in (R \cup V)$$

C = sets of carriers
R = sets of routes (service loop)
O = origin port
D = destination port
T = the time taken from the origin to destination
AC = the s.d. of the delay between actual and scheduled arrival/departure time
RL = the s.d. of the delay between actual arrival/departure time recorded manually or by CargoSmart

Product Layout (Input Interface)

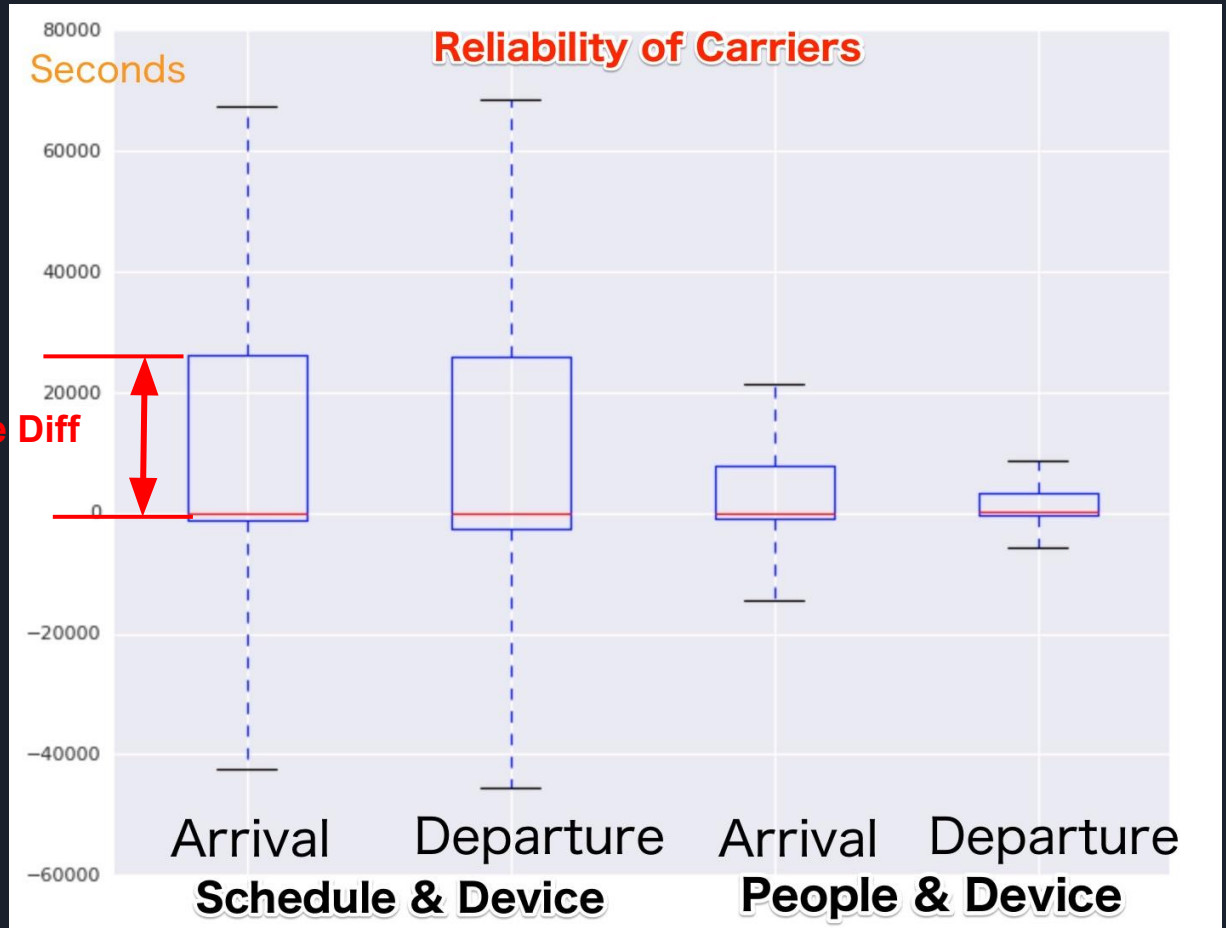


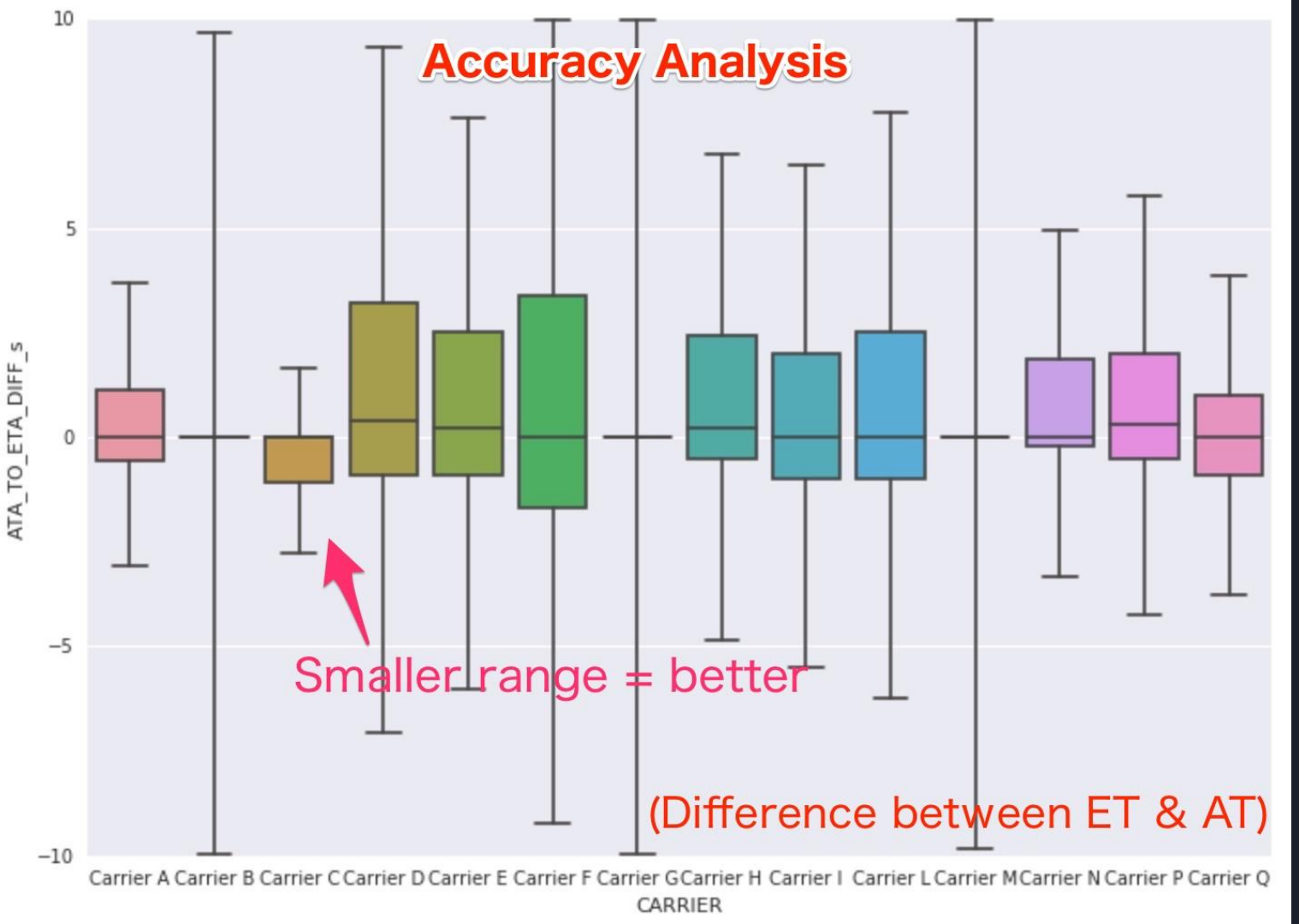
Product Layout (Output)

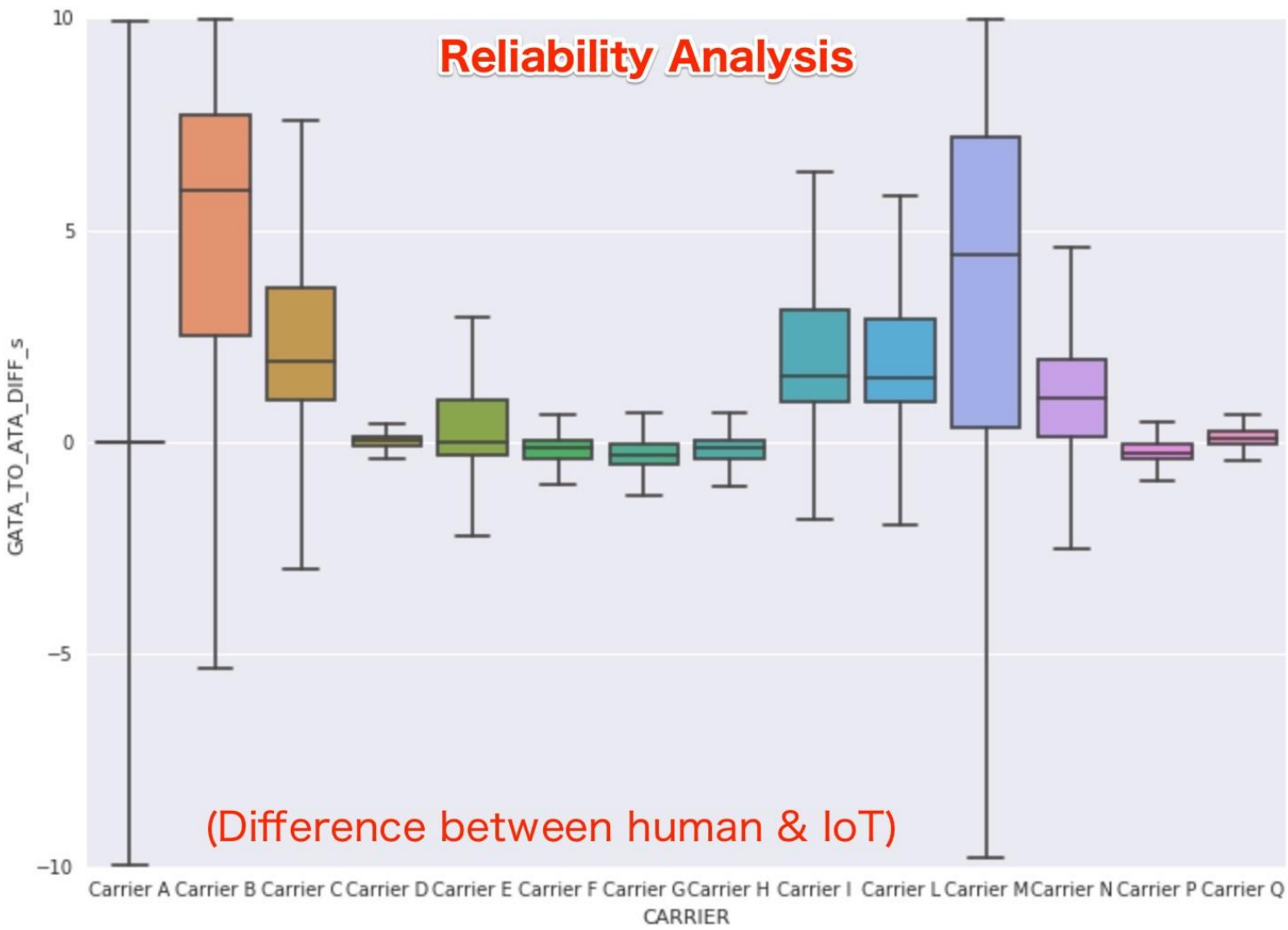


Rank	Carrier	Index	Sample Route	Estimated Time
1	Carrier B	8.9	Hong Kong-Singapore-Sydney	2 days 8 hours
2	Carrier C	7.2	Hong Kong-Singapore-Malaysia-Sydney	2 days 7 hours
3	Carrier O	7	Hong Kong-China-Sydney	2 days 5 hours
4	Carrier P	6.7	Hong Kong-China-Singapore-Sydney	2 days 15 hours
5	Carrier E	6.2	Hong Kong-Thailand-Malaysia-Sydney	2 days 10 hours

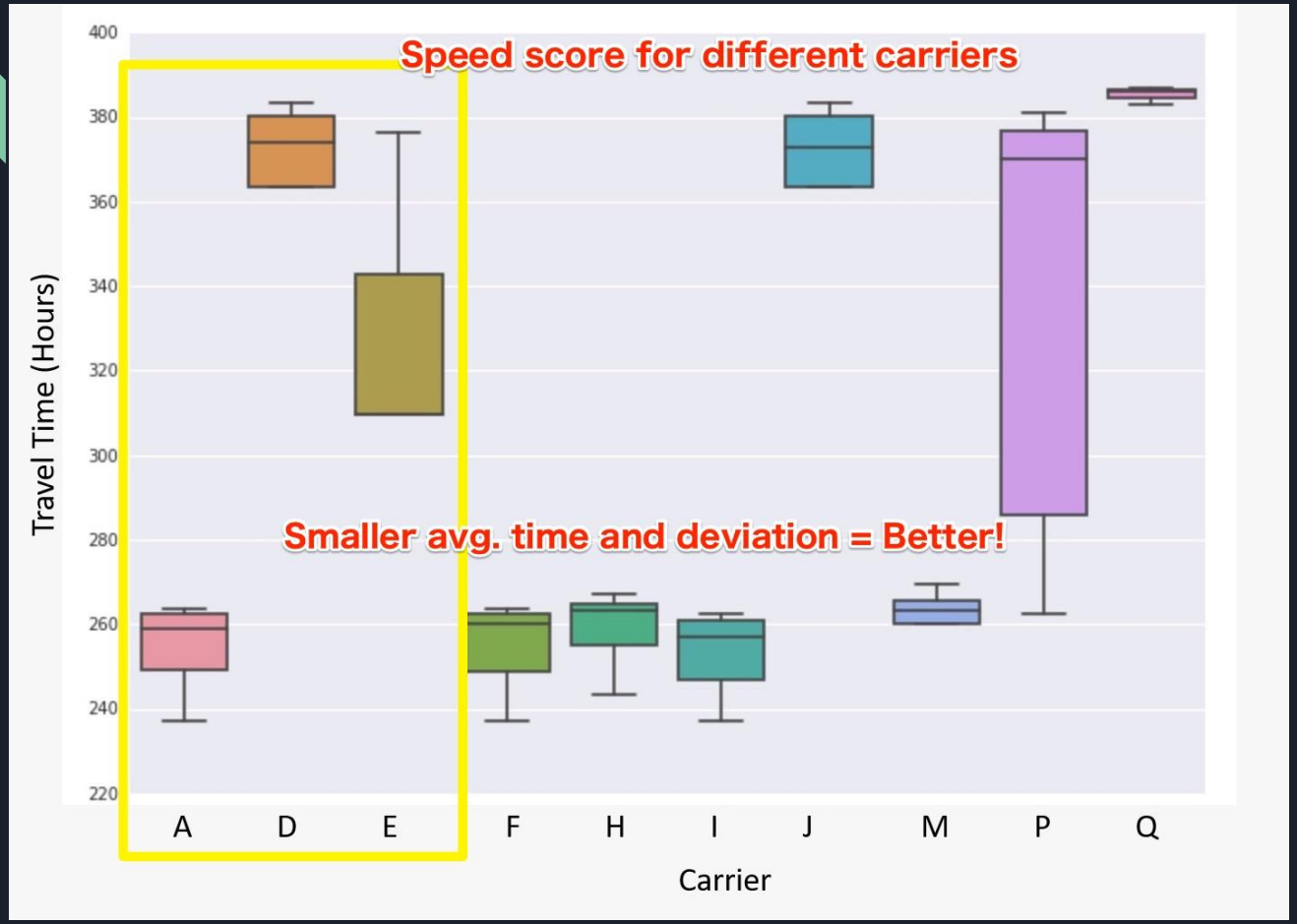
Methodology & Demonstration




Accuracy Analysis
10
5
0
−5
−10
ATA_TO_ETA_DIFF_s
Smaller range = better
(Difference between ET & AT)
Carrier A
Carrier B
Carrier C
Carrier D
Carrier E
Carrier F
Carrier G
Carrier H
Carrier I
Carrier L
Carrier M
Carrier N
Carrier P
Carrier Q
CARRIER


Reliability Analysis
10
5
0
−5
−10
GATA_TO_ATA_DIFF_s
Carrier A
Carrier B
Carrier C
Carrier D
Carrier E
Carrier F
Carrier G
Carrier H
Carrier I
Carrier L
Carrier M
Carrier N
Carrier P
Carrier Q
CARRIER
(Difference between human & IoT)

Case Study: HK to Sydney



- A = 9.2
- D = 2.2
- E = 4.0

Further Development

- Name of carrier → allow to fetch pricing information
- More criteria → more comprehensive understanding
- Mobile app

Conclusion

*Every carrier **performs differently** in terms of their*

***speed**, **accuracy**, and **reliability**.*

*It is important to **compare** in order to make the best decision.*

To easily compare different carrier performances...

Mx
Know More. Be More.