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Revisiting Cost Index - The Challenge of Calculating a Precise Figure for Brazilian Airliners

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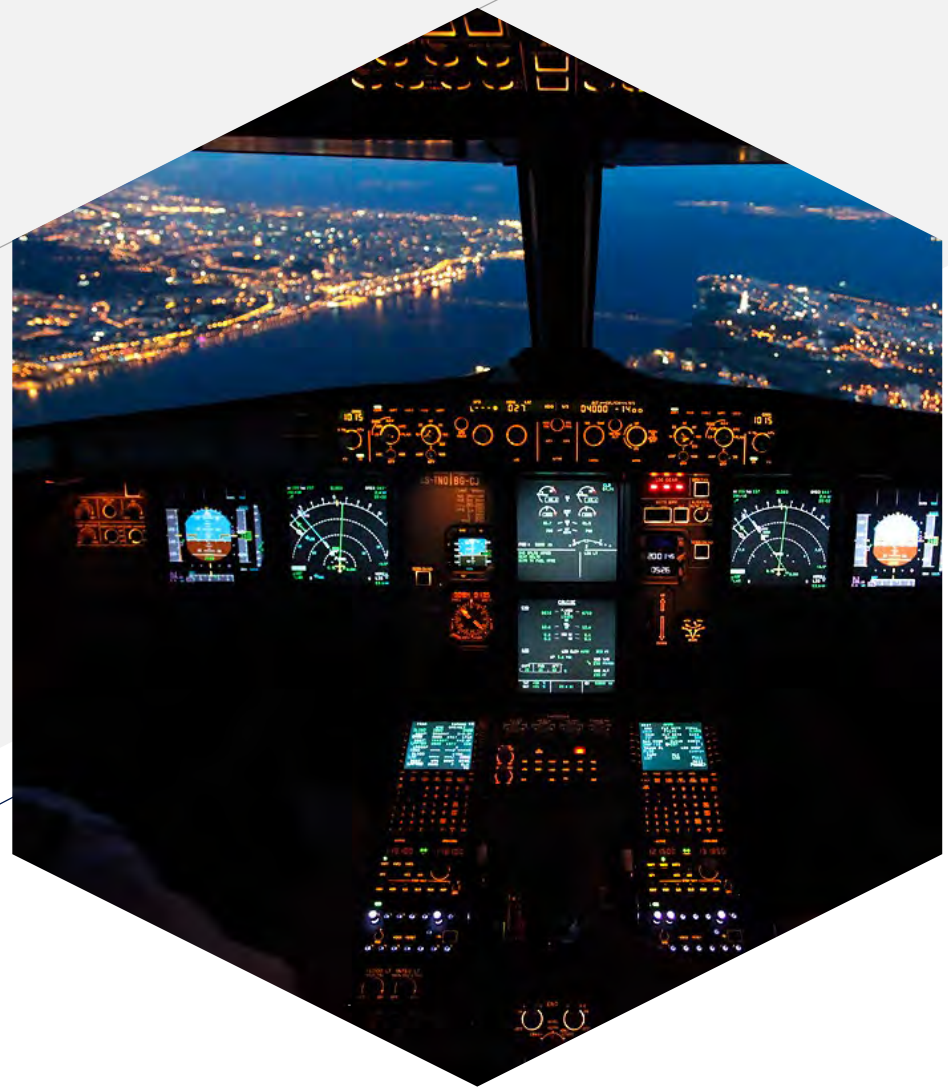

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Introduction:

- Cost Index (CI) is a powerful performance tool that provide operators with economic speeds that deliver minimum trip cost.
- It is up to the company to evaluate associated trip costs in order to calculate a precise CI value.
- Costs are divided in **time** and **fuel** related.
- Complex and diverse influencers create a challenge for airliners to calculate a precise figure.

Why Cost Index Among Brazilian Airliners?

- Airbus (1998), Burrows (2001) and Roberson (2007) agree that CI is underused by airliners;
- Studies indicate increased profitability when increasing CI precision (Dejonge and Syblon 1998);
- Brazilian reality: Highly volatile jet fuel price, complex legislation and cyclical crisis;

CI Influencers:

Time Costs:

- **Crewmember salary:**
  Number?
  Time of the day?
- Maintenence:
  Different intervals for diferent aircraft.
- Leasing:
  Contracts diferences,
  Aircraft, powerplant?
- Insurance:
  Contracts diferences.

Fuel Costs:

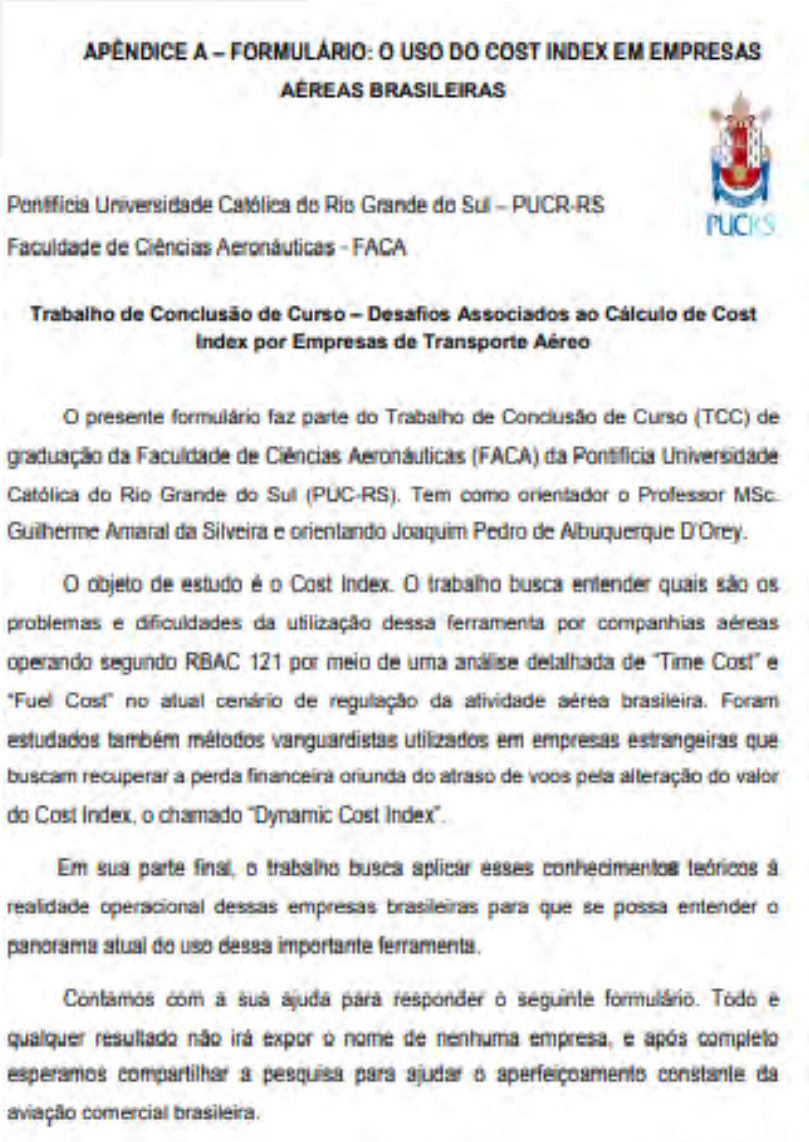
- **Price of jet fuel in diferent airports**:
  Different state taxation
  Cyclical oil crisis
  Tankering

Method:

- Exploratory approach:Understand the difficulty in calculating CI for Brazilian airliners by exploring the number of influencers that alters optimum CI;
- Questionnare answered by pilots from 4 of the biggest Brazilian part 121 airliners.
- Six situations where the Optimum CI would shift were pointed out in the questionnare. Pilots were asked if their company’s actual CI would also be diferent.

Method:

- In order to guarantee reliable data, minimum working time for pilots at their comapanies was set to five years.
- Subjects were contacted via email and agreed to answer the questionnare under a confidenciality agreement. Companies were named Company A through D.
- After data colection influencers were divided on time and fuel cost related.



APÊNDICE A – FORMULÁRIO: O USO DO COST INDEX EM EMPRESAS AÉREAS BRASILEIRAS

Pontifícia Universidade Católica do Rio Grande do Sul – PUCR-RS
Faculdade de Ciências Aeronáuticas - FACA

Trabalho de Conclusão de Curso – Desafios Associados ao Cálculo de Cost Index por Empresas de Transporte Aéreo

O presente formulário faz parte do Trabalho de Conclusão de Curso (TCC) de graduação da Faculdade de Ciências Aeronáuticas (FACA) da Pontifícia Universidade Católica do Rio Grande do Sul (PUC-RS). Tem como orientador o Professor MSc. Guilherme Amaral da Silveira e orientando Joaquim Pedro de Albuquerque D'Orey.

O objeto de estudo é o Cost Index. O trabalho busca entender quais são os problemas e dificuldades da utilização dessa ferramenta por companhias aéreas operando segundo RBAC 121 por meio de uma análise detalhada de "Time Cost" e "Fuel Cost" no atual cenário de regulação da atividade aérea brasileira. Foram estudados também métodos vanguardistas utilizados em empresas estrangeiras que buscam recuperar a perda financeira oriunda do atraso de voos pela alteração do valor do Cost Index, o chamado "Dynamic Cost Index".

Em sua parte final, o trabalho busca aplicar esses conhecimentos teóricos à realidade operacional dessas empresas brasileiras para que se possa entender o panorama atual do uso dessa importante ferramenta.

Contamos com a sua ajuda para responder o seguinte formulário. Todo e qualquer resultado não irá expor o nome de nenhuma empresa, e após completo esperamos compartilhar a pesquisa para ajudar o aperfeiçoamento constante da aviação comercial brasileira.

Results:

The Use of Different CI Values - Time Cost Influencers				
Company	In different aircraft models	In individual aircraft	During Nighttime	During flights with extra crewmembers
A	Yes	No	Yes	No
B	Yes	No	No	No
C	N/A	No	Yes	No
D	Yes	No	No	No

The Use of Different CI Values - Fuel Cost Influencers		
Company	During economic crises	In different aerodromes
A	No	Yes
B	Yes	Yes
C	Yes	Yes
D	No	No

Results:

- Final Question regarding any other situation that would alter the CI value:

Company D: ‘A company bulletin informed that there was an alteration of the CI policy due to a revision of time related costs. The bulletin defined CI as highly dynamic, but from the pilot’s perspective this dynamism is not translated into new CI values.’

Discussion: Time Costs Influencers:

- Unanimity when considering different values for distinct aicraft models.
- Difficulties for using different CI values for individual aircraft. Complexity involving diverse airline fleet. Data treatment viability issue.
- Crewmember wages during nightshift: different views.
- Soft Influencers such as two captains onboard may be difficult to be consider.

Discussion: Fuel Cost Influencers:

- Companies are more proactive when altering CI due to fuel cost influencers.
- Fuel accounts for 32.2% of total operations costs for Brazilian airliners (ANAC, 2018)
- Diminishing fuel costs does not necessarily decrease total costs – CI principle.

Conclusion:

- Optimum CI alteration does not necessarily influence on actual CI. Calculation depends upon companies' policy. Soft influencers are not taken into account.
- Brazilian airliners seem aware of CI importance and pass it on to the organization, but struggle to keep the calculation sharp, especially when considering time cost influencers.
- Fuel Cost influencers are better addressed by Brazilian airliners. Data Treatment issue.
- Dynamic CI, Cook et al (2009).

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Questions ?