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# Exploration of Innovative Products in Airline Services

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Master in Management

Supervisor:
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BUSINESS
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Department of Marketing, Operations and Management

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# Abstract

Due to the fierce competition inherent in the aviation industry combined with low profitability and high operating costs, airlines are called upon to pursue additional revenue in order to be financially sustainable. This research work examines the offer of the airlines seeking to understand the needs of passengers and the opportunities that potentially arise from them. In collaboration with TAP Air Portugal, the path is to innovate in the areas of ancillary services by improving the value proposition offered to passengers and by selling more through direct channels.

Passenger's travelling journey is analyzed trying to understand passenger preferences along this process. The relationship between the passenger and the airline specifically on passenger trust, airline reliability and acceptance of new products and services are explored. Lastly, it is also analyzed the possibility of airlines in reselling the airplane tickets.

Through the design and execution of an online survey, primary data was collected from the responses of 300 air passengers in order to explore passenger needs and the potential of innovative airline products and services. Therefore, through statistical analysis, it was found the reasons that make passengers not to acquire their airplane ticket directly with the airline. It was found that passengers are not satisfied with the information obtained and that they feel the need of being well advised to properly plan and make their trips. It was also found that passengers demonstrate a positive acceptance to exchange their airplane ticket, to a similar date, as long as they are refunded for doing so.

**Keywords:** Ancillary Revenues; Personalized Advice; Dynamic Packaging; Direct Channel Sales; Airplane Ticket Resell;

**JEL Classification**: M10; M30; O31

# Resumo

Devido à forte concorrência inerente à indústria da aviação, combinada com baixos lucros e custos operacionais significativos, as companhias aéreas necessitam captar receitas adicionais para serem financeiramente sustentáveis. Este trabalho de pesquisa examina as companhias aéreas procurando perceber as necessidades dos passageiros e as oportunidades que daí surjam. Em colaboração com a TAP Air Portugal, o caminho passa pela inovação na venda de *ancillaries* aumentando a proposta de valor ao cliente e vendendo mais nos canais diretos.

Assim, a jornada de viagem do passageiro é analisada tentando perceber as suas preferências ao longo deste processo. A relação do passageiro com as companhias aéreas nomeadamente aos níveis de confiança, fiabilidade e aceitação de novos produtos e serviços são explorados. Por último, foi também analisada a possibilidade de as companhias aéreas revenderem os bilhetes de avião.

Através da criação e execução de um inquérito online foram obtidos dados relativamente a 300 passageiros que usualmente viajam de avião de modo a explorar as suas necessidades e potenciais inovações em produtos e serviços. Assim, através de analises estatísticas, foram apuradas as razões que levam os passageiros a não adquirir o seu bilhete de avião diretamente com a companhia aérea. Foi apurado que os passageiros não estão satisfeitos com a informação que obtêm e que sentem a necessidade em serem devidamente aconselhados ao fazerem as suas viagens. Foi também apurado que os passageiros demonstram um nível positivo de aceitação para trocarem o seu bilhete de avião, para uma data próxima, se forem reembolsados para o fazer.

**Palavras-chave:** Receitas Auxiliares; Aconselhamento Personalizado; Pacotes Dinâmicos; Vendas nos Canais Diretos; Revenda do Bilhete de Avião;

**Classificação JEL:** M10; M30; O31

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# List of abbreviations

**ATO** - Airport Ticket Office

**CAB** - Civil Aeronautics Board

**CTO** - City Ticket Office

**FSC** - Full-Service Carrier

**GDP** - Gross Domestic Product

**GDS** - Global Distribution System

**IATA** - International Air Transport Association

**ICAO** - International Civil Aviation Organization

**IFE** - In-Flight Entertainment

**LCC** - Low-Cost Carrier

**LTAW** - The Leading Travel Agencies of the World

**NDC** - New Distribution Capability

**OTA** - Online Travel Agent

**RBD** - Reservation Booking Designators

**TAP -** Transportes Aéreos Portugueses

**XML** - Extensible Markup Language

CHAPTER 1

# Introduction

The competition intrinsic in the aviation industry in conjunction with low profitability and significant operating costs, force airlines to explore additional revenue channels in order to be financially sustainable. Ancillary revenues are growing year after year and today it seems evident that there is a great opportunity for airlines to invest in this potential revenue stream and to keep investing in the future. For most passengers, planning a trip is not about the flight, it's about the experiences at the destination (Leon & Uddin, 2017). Airlines, with their unique position on the travel journey of passengers, have a responsibility – and an opportunity – to provide passengers with more intuitive booking experiences in an increasingly global and digital environment (Warnock-Smith et al., 2017).

Nowadays, airlines aim to be more independent on the sale of airplane tickets, products and services and not to rely on intermediate agents that would mean higher distribution costs (Wang et al., 2018). In a highly competitive industry, airlines want to get closer to the passenger in order to be able to sell directly more products and services at a lower distribution cost. Whenever an airline makes a sell via an indirect intermediate there is a cost associated. Distribution costs mean weight in the competitiveness of airlines that imperatively need to be competitive to survive. Challenged with high fixed costs and substantial indirect distribution costs, airlines frequently attempt to find an efficient and effective distribution strategy that leads revenue to maximization for each seat on every flight (Toh & Raven, 2003).

That said, airlines are starting to identify enormous opportunities in generating additional revenues by becoming retailers of products and services rather than selling only the seat fare. Due to the IATA NDC debuted in 2012, direct connect is nowadays a reality for the future. NDC stands for the New Distribution Capability, which is essentially an XML - Extensible Markup Language - standard (i.e. a flexible way to create information formats and electronically share structured data via the public internet, as well as via corporate networks) created by the International Air Transportation Association (IATA) to allow airline service providers to deliver rich content and ancillaries to their customers (AltexSoft, 2019). NDC was created to enable the travel industry to change the way air products are retailed to corporations, leisure and business travellers, by addressing the industry's current distribution limitations: product differentiation, access to full and rich air content and finally, transparent shopping experience (IATA (A), 2019).

The topic of this work is the exploration of innovative products and services arising from passenger experiences and perceptions. TAP Air Portugal is the used case study, as practical application allows to draw better conclusions on how a certain business area operates to innovate its operation and thereby increase revenues and profitability. As TAP is currently having great interest in what could be done to increase its revenues and is analysing the alternatives of achieving that, the author, who was part of TAP's Strategic Distribution team, was challenged to address the topic before the appearance of COVID-19 pandemic. Additionally, this theme also clarified some doubts in relation to a start-up project to which the author was linked concerning personalized advice and the selling of products and services that passengers need at the destination.

TAP is considered in strategic terms as a flag carrier that has a key role in the development of Portugal's tourism. Considered a full-service carrier, ideologically, instead of providing the lowest market price, it seeks to offer a better-quality service (Pereira & Caetano, 2015). However, what has been happening, not only at TAP but in all FSCs around the world, is that more and more the differentiated service is being decomposed to sell additional revenues. The case of TAP is no exception, and it is visible that nowadays many of the services that were previously included in the airplane ticket are no longer included.

TAP and other airlines have tried their best to follow the steps taken by low-cost carriers in order to offer the lowest prices to those who use fewer services and naturally have a higher price sensitivity. By adopting this type of strategy, airlines can be more competitive by presenting a lower price while managing to capture additional revenue for passengers who want to use more services and products (Wit, 2012).

### 1.1. Thesis objective and methodology

The objective of this thesis is to find additional sources of revenue for airline companies by exploring the passenger needs and preferences. In order to reach this objective, the following questions will be addressed:

- What is the business model of airlines and their types?
- What is the current state of the distribution model within airline companies?
- What are ancillary revenues?
- How ancillaries are growing, and which are the innovations and trends?
- How important are customer trust and acceptance of travel packages?
- How are airline companies performing in terms of ancillary revenues?

In terms of methodology, after reviewing previous research, findings and information in the literature review, it will be proposed revenue streams that TAP Air Portugal and other airlines should follow, finding the answers to the following matters:

- What can airlines do to help the passenger get the most of his trip on his travelling journey and how can this translate into increased revenues?
- Considering that the sale of ancillaries requires the passenger to buy the airline ticket directly on the airline's website, how is it possible to increase sales on direct channels?
- To what extent it may be a business opportunity to create a process to resell the ticket fare to maximize the flight revenue while minimizing the airlines' overbooking problem?

### 1.2. Thesis structure

The thesis was structured to have 6 distinct chapters. Starting with the Introduction chapter, the Literature Review follows aiming to present the functioning of the aviation industry, that is, how the sector evolved and which were the important periods, which types of airline companies exist, their respective business models and which practices are most used in this industry, both in terms of business strategy and in terms of distribution strategy. Also, in the Literature Review the topic of Ancillary Revenues was approached, which turns out to be a central theme in this work. Since it is intended to explore in innovating new products and services, it is then discussed the importance that passenger trust has concerning airlines and the level of dynamic packaging acceptance by the passengers. Finally, the Literature Review ends with a benchmarking that identifies the most successful airlines in terms of performing in ancillary revenues and the recent trends and innovations that occur in the airline sector worldwide.

Then, the methodological approach is presented that gives the frameworks to perform this thesis. Specifically, it is explained the methodology for collecting and analysing data that will support the conclusions and validations of this work. On the following chapter, the data collected is treated and analysed by topic in order to discuss and present the business implications in the succeeding chapter. After this, it is presented the conclusions of this thesis considering what was done and what can be a further challenge regarding the theme in the discussion.

CHAPTER 2

# Literature Review

## 2.1. Airlines: Evolution and Growth

This section intends to give an overview of the background and current state of the airline industry, from the evolution and growth of the sector to the regulation, alliances and distribution models within the Airline Industry.

Aviation industry came up in the early 1900s when airplane designers in several countries succeed in achieving flights (IATA (B), 2019). Such achievements, as the Wright brother flight, one of the most remembered in the history of aviation, stimulated the creation of technologies and innovation in the aviation industry.

In the decade of 1910 aircraft commenced transporting goods and items initiating freight or cargo services. People then gradually learned about efficiencies of air transport which did not take much time for the airline practices to be established (IATA (C), 2019).

In the 1910s the first airline companies started to appear, being the oldest airline, which is still operating nowadays KLM “Koninklijke Luchtvaart Maatschappi” created in 1919 in Netherlands. In 1920, when flying was still very special, KLM transported 345 passengers and 25.000 kilos of mail and cargo. By comparison, currently in 2019, on a single Boeing 747 flight, KLM can carry more than 400 passengers and 20.000 kilos of cargo (KLM, 2019).

One reason that contributed to this evolution of the airline industry was World War I, which started in Europe in 1914. This is explained because of the nation’s war demand in aviation research in order to build military aircraft to fight in the war. The remarkable advances made in the aviation industry during World War I are still at the core of airpower, says Dr. Peter Gray (BBC News, 2014).

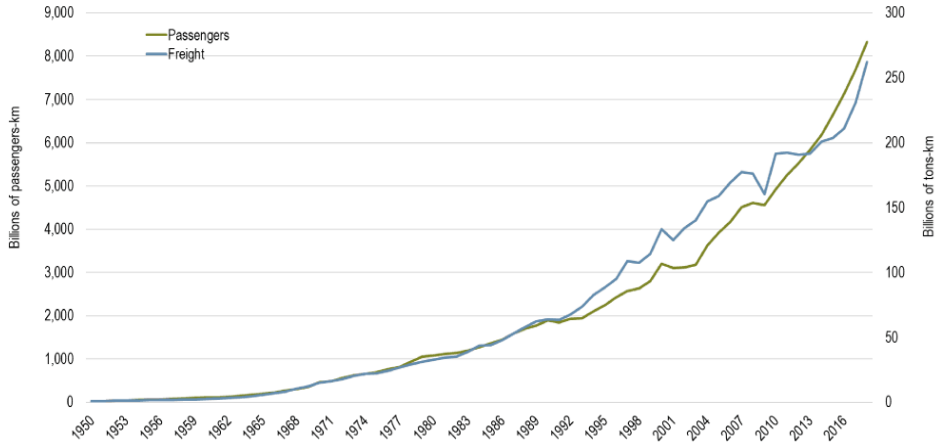
The airline industry continued growing. In 1945 when World War II ends, IATA (International Air Transport Association) was formed in Havana, Cuba. The formation of IATA counted with 57 members from 31 different Nations, mostly from Europe and North America. Also, to mention that before 1945 an old IATA existed however with only the European dimension and thus with less expression worldwide. The joining with Pan American instantly made the post-1945 IATA with larger responsibilities with a more systematic organization and a larger infrastructure (IATA (C), 2019).

In IATA's 1945 Articles of Association the primary aims were:

- To promote safe, regular and economical air transport to boost air commerce and to scrutinize the complications connected with such activities;
- To deliver means for collaboration between the air transport enterprises involved in the international air transport service;
- To collaborate with the newly created ICAO (International Civil Aviation Organization) and with other international organizations;

During the late 1950s and the 1960s, the jets revolutionized air travel. The aircraft was more powerful, able to transport more passengers quicker and further. At the beginning of the 1960s, air traffic doubled in ten years as shown in figure 1 below, and from there the growth continued exponentially. The capacity for transportation of passengers was now nearly 200 per aircraft, a number that made the airlines turning into a recognized way of transportation (Dilrukshi, 2017).

**Figure 1.** *World Air Travel and World Air Freight Carried, 1950-2018*




**Source:** *Airlines for America (2016)*

Furthermore, throughout this time ancillaries start to emerge in airline companies with the introduction of tourist class service that affected both fares and seating arrangements. Thus, airlines started to segment the passengers by giving them the possibility to buy a first-class fare by generally 20-25 percent upper price than the tourist class (Morrison & Winston, 2010). Consequently, providing the economy class with lower fares made air travel more affordable with more passengers to travel by air.

Known as the golden age of air travel, in this period, the airline industry experienced a significant global advance that lad to economic growth, world trade, international investment and tourism, therefore contributed a lot to the general globalization of the world (Cook, 1996).

The decade of the 1970s is central in terms of aviation history. Due to the deregulation of the U.S. Air Industry, the way airlines operated changed completely. Also, it contributed to the deregulation in Europe, in 1987.

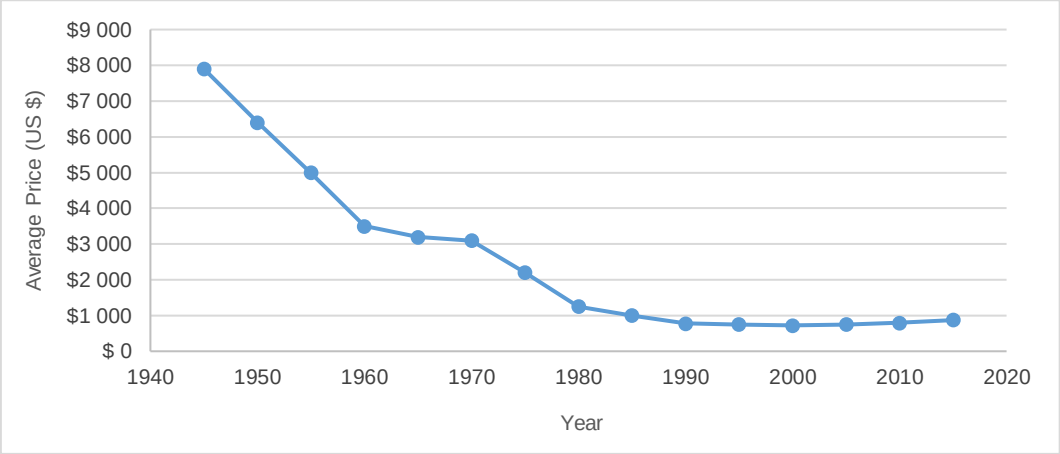
Before 1978, airlines obeyed an intricate network of rules elaborated by the North American federal government and under the CAB (Civil Aeronautics Board) control, which determined whether a new airline could fly to a particular city and even specified the airfare. Consequently, these airline companies ran under federal government policies and had exclusive rights that would reflect in favourable contracts. Many economists reasoned that the regulatory environment created and administered by CAB limited competition to the detriment of travellers, resulting in high prices and unresponsive service (Kole & Lehn, 1999).

Therefore, the primary objective of airline deregulation was market-focused. Washington wanted to promote competition among airlines to lower fares and improve the service. Also, it was claimed that deregulation would bring a more robust airline industry, whose profitability had been eroded because of the high inflation and oil prices of the 1970s (Williams, 1994).

Moreover, airline deregulation was an enormous event. Its outcomes are still being felt today, as low-cost carriers (LCCs) challenge the “legacy” of airlines that were in existence before deregulation. Combining the U.S. and European deregulation, which had the same purpose in terms of increasing the competition and lower the prices, in the 1990’s the growth of low-cost carries emerges on a significant scale.

In figure 2 below, it is possible to observe the reduction of the airfare price during the years using a highly travelled and competitive international route, New York – London, as a setting reference. The deregulation of the market in the 1970s boosted this tendency in those years. Note: prices at 2012 US Dollars.

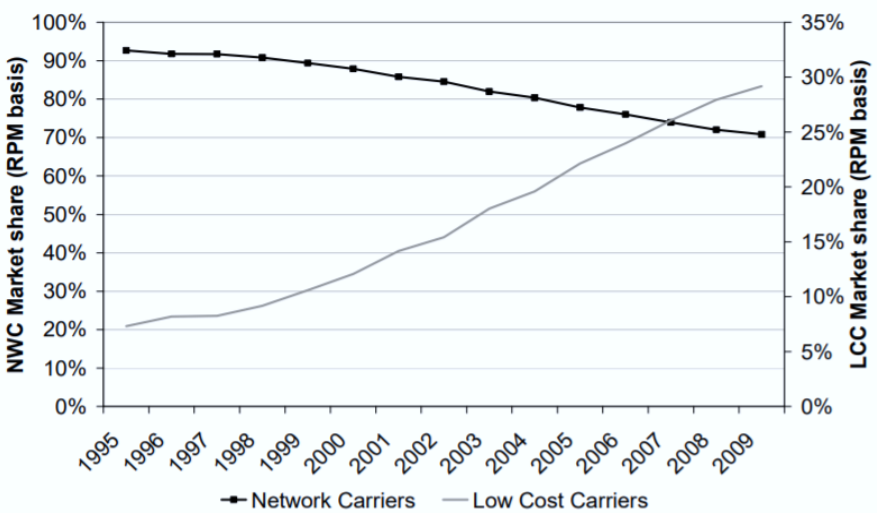
**Figure 2**. *Average Airfare (roundtrip) between New York and London, 1945-2015*




**Source:** *Bowen, J. (2015)*

In the period from 1995 to 2009, the domestic U.S. airline industry experienced a significant growth in demand reflected in major measures of output such as the number of passengers or revenue passenger miles (Hüschelrath & Müller, 2012). Comparing between major full-service carriers (FSCs) and low-cost carriers (LCCs), we can observe in figure 3 below the continuous growth of market share regarding the LCCs from 1995 to 2009. Oppositely, the FSCs diminished in terms of market share during the same period.

**Figure 3.** *Market Share (RPM Basis)*



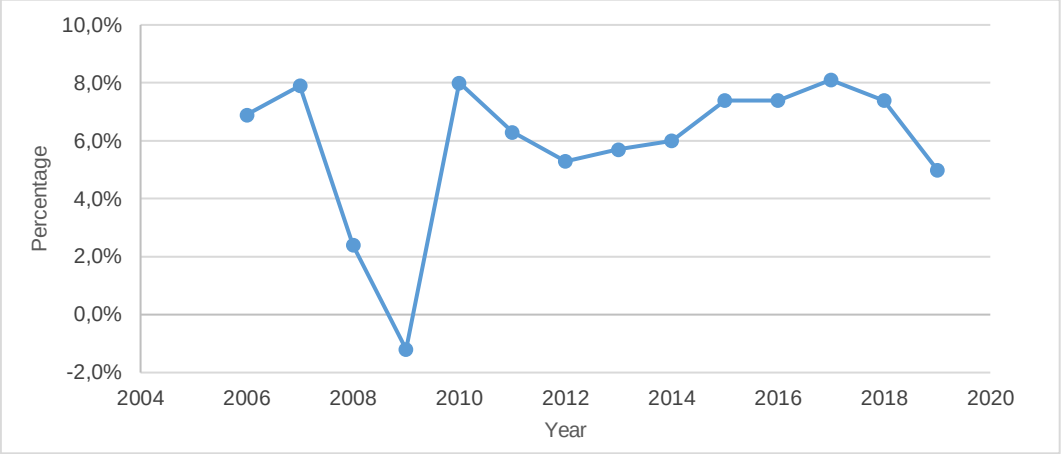

**Source:** *MIT Airline Data Project (2011)*

Over the past decade, alongside the general improvement in the global economy, airlines have grown in profitability, matured in terms of employing better capacity management and cost controls, and have benefitted from the explosion in demand for passenger air travel (Tozer-Pennington, 2019).

Passenger travel continues to grow above the long-term ten-year average of 5.5%. However, the latest data from the International Air Transport Association (IATA) shows a slight cooling in passenger growth over 2018, with profits, while still positive, also reducing for most airlines as they grapple with higher costs. Also, 2015 was the first time that the industry generated a return on investment greater than the cost of the capital (IATA (C), 2019).

In figure 4, below, it is possible to observe the annual growth in air traffic demand during the period from 2006 to 2019. It is conclusive that the rate has been positive in the last few years except for the year of 2008, where the global economy felt a strong crisis.

**Figure 4.** *Annual Growth in Air Traffic Passenger Demand: 2006-2019*




**Source:** *Economic Performance of the Airline Industry (2019)*

Meanwhile, the operational costs are rising globally within the airline industry. Labour costs are becoming a more significant issue for airlines, specifically concerning pilots and skilled technicians. Maintenance costs are also rising due to more expensive labour and rising interest rates, which is pushing up prices for airlines and aircraft owners (Tozer-Pennington, 2019). Moreover, the distribution costs are also significant and thus airlines are committed to innovating in their direct distribution channels as an opportunity to increase revenue and save some indirect distribution costs (Koo et al., 2011).

The year 2019 was the tenth year of profit and the fifth consecutive year where airlines, on the whole, deliver a return on capital that exceeds the industry's cost of capital, creating value for its investors. The International Air Transport Association revealed that the global airline industry net profit was $25.9 billion in 2019. This number shows that the economic performance in 2019 was worse than had been expected compared to the forecast. This occurrence is explained due to the weaker global GDP growth of 2.5% (versus 2.7% forecast in June) and world trade growth of just 0.9% (down from 2.5% forecast in June). (IATA (B), 2019).

For this year, 2020, the forecasts were supposed to be good for the airline industry if the COVID-19 did not appear in almost every corner of the world. In normal conditions, the airline industry would remain to present growing profits. Because of the pandemic, on July 2020, the global air transport industry is expected to lose $84.3 billion in 2020 for a net profit margin of less 20.1%. (IATA (D), 2020).

### 2.2. Airlines: Business Model

As mentioned in the previous chapter, the deregulation and liberalization in the civil aviation industry have opened the door to significant changes in this sector. The arrival of low-cost

carriers (LCCs) on the marketplace has led to new business models (Gillen & Morrison, 2005). LCCs have entered the civil aviation transport market by offering lower prices, point-to-point, and without including services and products associated to the flight experience. In short, airlines have grown very fast and today already cover 33.1% (2019) of the market (Mazareanu, 2020).

Before the 80's airlines were required to fly the routes determined by the governments, that is, typically the capital of the country/state was the origin of every flight that connected the country/state to abroad destinations. Therefore, full-service carriers started to concentrate their operations in a main airport, the so-called airline hub. It turned out that it was considered advantageous to rationalize their operations by a hub-and-spoke network that translated in an efficient way of connecting the hub to the spokes (Bonsor. 2001). The hub-and-spoke network usually consists of a central airport (hub) and several secondary airports (spokes). This model has proved to be the most efficient model for full-service carriers because they allow airlines to optimize their operations by exploring economies of scale (Holovacs, 2014).

Shortly after the liberalization, it was possible to broadly divide airlines into two different business models: full-service carriers and low-cost carriers. From a common established industrial distinction, the main characteristics that distinguish these two types of airlines are described in table 1 below:

**Table 1.**
*Features of FSCs and LCCs*

| Features | FSCs | LCCs |
|---|---|---|
| **Core business** | Passenger and Cargo | Passenger |
| **Consumer base** | Economy and Business | Economy |
| **Network** | Hub-and-spoke often at main airports | Point-to-point often between secondary airports |
| **Coverage** | Domestic, international and intercontinental | Domestic and continental |
| **Ticketing** | Round-trip ticket | One-way ticket |
| **Ticket selling** | Various distribution channels (e.g. agency, direct) | Direct online |
| **Aircraft** | Cabin divided into the economy and premium class | Single class cabin |
| **Fleet** | Diversified | Uniform |
| **Product bundling** | Frills (i.e. complimentary services) | No frills |
| **Customer management** | FFP | No FFP |

**Source:** *Organisation for Economic Co-operation and Development (2014)*

In response to growing competition and changing consumers' behaviours, airlines continuously adapt their business models. This progress is reflected by the hybridisation of airlines' business

models. There is increasing agreement that “there is now a continuum of different business models in play rather than a simple categorization by discrete groups” Lohmann and Koo (2013). Klophaus et al. (2012), for example, after investigating European airlines’ operations on the four major LCC markets in Europe, found that it was more proper to categorize airlines as: pure LCC, hybrid carrier with dominating LCC characteristics, hybrid carrier with dominating full-service airline characteristics, and full-service airline.

Some FSCs have moved to provide low-cost services. Aer Lingus has turned from the typical network carrier model to a low-cost model that focusses in long-haul routes. Other legacy carriers, such as Qantas or Lufthansa responded to competition from LCCs by generating their own LCC: Jetstar and German Wings, respectively.

In addition, FSCs are un-bundling their proposal, separating no-frill flights from ancillary amenities, and pricing them separately. For example, certain airlines have stopped offering complementary food for economy customers (e.g. North American airlines), while other airlines have commenced introducing fees for checked baggage (e.g. KLM and British Airways on their European routes) or charging for seat reservation. FSCs are also increasingly offering tickets via their website rather than through traditional distribution channels. Fleet homogeneity or heterogeneity also no longer permits distinguishing between FSC and LCC, as FSCs today tend to rely on the homogenous fleet, at least on short-haul routes (Gillen & Gados, 2008).

LCCs are also more and more providing FSC-like services, such as frequent flyers programs, priority boarding and extra luggage, as contrasting to their traditional no-frill offers, such as Air Berlin and West Jet. These new amenities reflect LCCs’ move in the direction of enticing demand from more customer segments (e.g. business passengers). LCCs further pursue to geographically increase their networks by offering long-haul routes and by moving to primary airports.

Is not surprising the on-going hybridisation of airline business models. Both established and new airlines require to have flexible business models to continuously adapt and continue profitable in a competitive atmosphere. When investigating competitive interactions between companies functioning different business models, LCC-FSC competition seems more effective than LCC-LCC competition.

Furthermore, Urban et al. (2018) categorized airlines by applying the business model canvas and clustering algorithms. The goal of the study was to identify airline clusters, which go beyond low-cost and full-service carries models and to ease a better understanding of the features distinguishing different airline business models. The business model canvas is based on nine building blocks: Costumer Segments; Value Proposition; Channels; Customer

Relationship; Revenue Streams; Key Resources; Key Activities, Key Partners; and Cost Structure (Osterwalder & Pigneur, 2010). From the nine building blocks that concern to business model canvas, 28 key factors were selected in order to describe the structure, the size and the quality/performance of airlines. Thus, from an extensive analysis, this study permitted to identify seven airline clusters as observed in Table 2 below:

**Table 2.**

*Airlines Categorization by applying the Business Model Canvas*

| Cluster | Features | Airlines |
|---|---|---|
| **Point-to-point low-cost carrier** | • Homogeneous fleet<br>• Low service orientation<br>• Low operating costs<br>• Point-to-point<br>• Strong market position | Ryanair, easyJet, Vueling, Azul |
| **Hub-and-spoke low-cost carrier** | • Homogeneous fleet<br>• Low service orientation<br>• Low operating cost<br>• Hub-and-spoke<br>• Some long-haul flights | Southwest Airlines, Cebu Pacific, Air Asia, Aer Lingus, Scoot, Jetstar |
| **Global hybrid carrier** | • Neither low-cost carrier nor full-service carrier<br>• Hub-and-spoke and point-to-point<br>• Strong competition<br>• High operating cost | Air Berlin, China Eastern, Hainan Airlines |
| **Medium-size full-service carrier** | • Solid financial market position<br>• Long-haul flights<br>• Hub-and-spoke<br>• Similar to large-size full-service carrier | Turkish Airlines, Virgin Atlantic, Iberia |
| **Global niche market full-service carrier** | • Strong market position<br>• Hub-and-spoke<br>• Serving niche market<br>• Strategic geographic position<br>• Low regional competition | Finnair, TAP, Avianca, South African Airways, Air New Zealand, Aeroflot |
| **High quality full-service carrier** | • High service level<br>• Large aircraft<br>• Low frequency<br>• High operating cost<br>• Hub operating hours up to 24 h/day | British Airways, Emirates, Etihad, JAL, ANA, Singapore Airlines, Thai Airways, Malaysia Airlines, Korean Air |
| **Large-size full-carrier** | • Heterogeneous fleet<br>• Large route network<br>• Hub-and-spoke or multi-hub<br>• High operating cost<br>• High competition | United Airlines, Lufthansa, Cathay Pacific, Air China, China Southern, American Airlines, Delta Airlines, Air France, Qatar, Qantas, KLM |

As it is possible to observe in table 2 above, TAP is categorized as a global niche market full-service carrier that has a strong market position serving a niche market with a strategic geographic position. Operating with a hub-and-spoke, TAP is also identified as being in a low regional competition.

### 2.3. Airlines: Distribution Model – GDS to NDC

Some years ago, airlines were used to distribute their products solely via their direct channels: contact centres, through their ATO (Airport Ticket Office) and CTO (City Ticket Office) (Habtemariam, 2018). Airlines soon understood that direct channels were not enough to rapidly and effectively distribute their products and were preventing costumers to buy and more important for the airlines: to sell. Because of this gap, the concept of travel agent arose in the industry, and their main task was to allow costumers' rapid comparison of several airline prices and routings, through a single website or physical space (Sion et al., 2013). Travel agents became known as experts on the travel industry and the technology allowed facilitation of their job with the development of a common IT platform known as GDS (Global Distribution System) (Altexsoft, 2019).

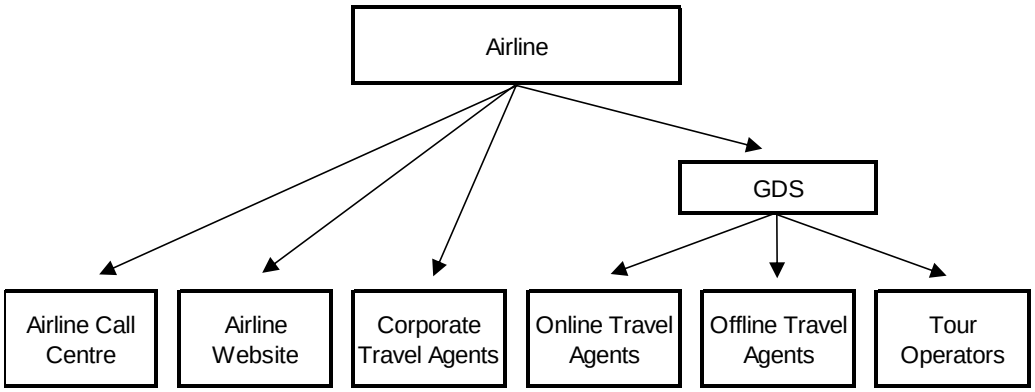
GDS or Global Distribution System refers to the reservation network tool travel agents use when making an air, hotel, car or other travel service booking (Amadeus, 2019). GDS were created with a single goal: to provide multi-airline content to travel agents, communicating directly with airlines' PSS (Passenger Service System). Some of these GDS were initially owned by one or more airlines, but later sold or spun off as independent entities so that services could be cross-marketed. Aiming to reach more and more customers, airlines quickly agreed to share their seat inventory and pricing information with often more than one GDS, who in turn would organize it and make it easily available to travel agents and computerized websites (Stonehouse et al., 2001).

By accessing many airlines at once, travel agents feel more comfortable that they are finding the lowest price or most suitable travel option for their customers by using a GDS. Since most agents use a GDS, airlines receive better exposure to their products when they participate, usually leading to higher ticket sales (Belobaba et al., 2015).

Market share is a critical factor in the success of GDS because agents usually choose to affiliate with only one GDS due to the complexity of learning the commands and procedures of multiple systems, but also because agents pay to use the GDS through subscription fees, and as airline participation has become more comprehensive, there is less and less incremental benefit from subscribing to multiple GDS. One of the reasons that airlines participate in so many GDS is that, unlike agents, they pay the GDS for their distribution services with transaction-based fees, which can be passed on to the customer in fares for each ticket. This is the base for the almost symbiotic tripartite relationship (Habtemariam, 2018).

In the figure 5 below it is possible to observe the channel distribution system:

**Figure 5.** *Channel Distribution System*



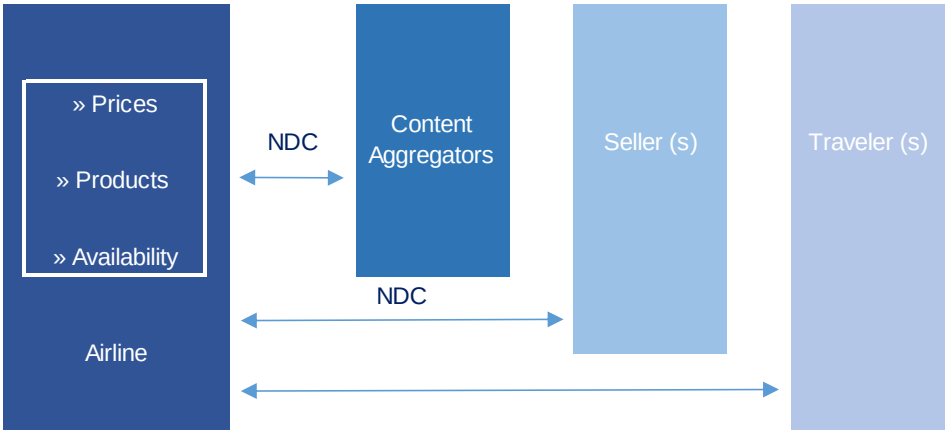

**Source:** *Dynamic capacity allocation for airlines with multi-channel distribution (Wang et al. 2018)*

While only a marketplace GDS started to be seen as the star of the play, the distribution costs rapidly escalated, reducing airlines' margins leading to considerable distribution costs. With more sales and higher rates, GDS started to use a portion of the transaction fee paid by airlines to incentivize relevant size travel agents to enrol and use their platform. This behaviour took place for years and turned the distribution system to a point where it is observable an almost uncontrollable sales' shifting from the direct to the indirect channel (Infrata, 2017).

Willing to reduce distribution costs, airlines started to define strategic approaches that would include fair contracts negotiation with GDS providers and the intensive look into new technologic approaches called "direct connect" (Cheng & Huang, 2014). Direct connect is perceived as way to bypass GDS, recovering control of airlines' distribution course and avoid unfair and excessive payment by allowing travel agents to access directly airlines' content (Souza, 2018). Because of the appearance of the IATA NDC in 2012, direct connect is now a reality for the future that was created to permit the travel industry to change the way air products are retailed to corporations, leisure and business travellers, by addressing the industry's current distribution limitations: product differentiation and time-to-market, access to full and rich air content and finally, transparent shopping experience (IATA (A), 2019). With it also emerged the concept of the offer management system as the one being responsible to create tailor-made content with higher profit margins to airlines. This module is fed with relevant customer data by communicating directly entirely with airlines' IT ecosystem, granting that the customer gets the best offer for his profile, as well as leverages airlines' ancillaries by bundling them into personalized offers (IATA (E), 2016).

In the figure 6 below it is possible to observe the air retailing industry tomorrow:

**Figure 6.** *Air Retailing Industry Tomorrow*




**Source**: *IATA's NDC implementation guide (2012)*

Airline distribution in the next few years will be poised with an enormous transformation. The following trend of change will generate a "big opportunity for airlines to move to a new world" in how they retail ancillaries. Besides the new NDC Standard, another promoter for this technology change is the IATA's One Order single customer order record that will enable the airlines to keep track of the data associated to the traveller's purchase, including base and ancillaries products across different channels, touchpoints, and purchase sessions, so airlines can trail and fulfil what the traveller buys, in compliance with the personal data protection (IATA (F), 2015).

The prospect of airline distribution truly concerns the commercial future of the airline industry itself. Since airlines want and need to be more effective in the way they sell, so that travellers find the value they seek and airlines can be more successful businesses, distribution can no longer be isolated (IATA (E), 2016).

Distribution is and will remain to be, about building and filling a highly efficient marketplace, so that airlines enable the finest possible "shelves" to sell its products. This perception will not change in the next five years, or the decades beyond. What will vary is how these marketplaces will operate, the technologies in practice, the capabilities they offer and the third-parties with whom to associate. It is conclusive that the introduction of the NDC standard will empower airline companies to innovate in the airline retailing of air and non-air ancillaries.

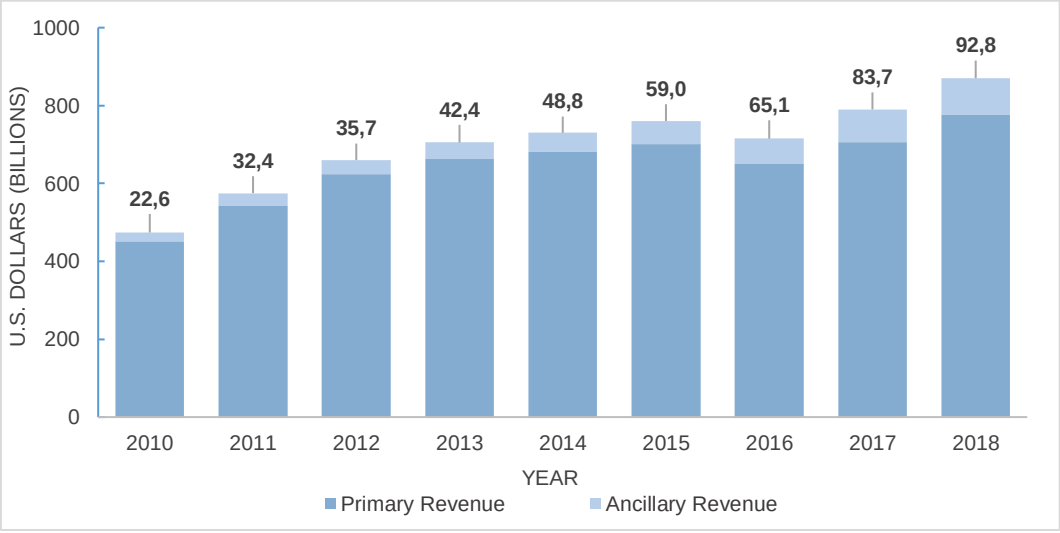
### 2.4. Ancillary Revenues

In terms of revenue, ancillaries are the most promising rising group of revenue in the airline industry as new sources of income in this low-margin sector (Avram, 2017). O'Connell and

Warnock-Smith (2013) define ancillary revenue as income generated beyond the sale of air travel tickets produced by direct sales to passengers, or indirectly as a share of the travel journey. Ancillary revenue is created by a great volume of activities including “a la carte” services, commission-based fees from activities, frequent flying miles to airline partners and services that increase the yield revenue for the airline company further than the traditional transportation of the passenger from one point to another, enabling sufficient options for passengers and increasing profitability for airlines.

As competition increases and operational costs rise driving pressure on yields, airlines must realise the substantial importance of the ancillary revenues and how it can expand the profitability of the airline (Avram, 2017). Warnock-Smith et al. (2017) discuss that as additional entrants have joined the airline business and as the airlines function in a dangerous competitive atmosphere, creating tariffs particularly transparent, airline yields have depreciated. Since the demand for higher fares has fallen and customers desire lower fares, it is understandable that traditional revenue management (i.e. ticket sales) can no longer get the most out of airline’s revenue and ancillary revenues are an “embedded engine” that is becoming a vital constituent of the financial performance of the airline industry. Therefore, in figure 7 below it is possible to observe that ancillary revenues are valued to be worth around $92.8 billion in revenue or 10.7% of the entire commercial airline revenue in 2018 (IdeaWorksCompany, 2019). On the other side, primary revenue accounts for the majority of revenue captured by airlines since it is the revenue stream concerning the core business of airlines: flight operations.

**Figure 7.** *Total Ancillary Revenue in billion U.S. Dollars 2010-2018*




**Source:** *IdealWorksCompany (2019)*

IdeaWorksCompany, the prime consultancy company regarding airline ancillary revenue, and CarTrawler, the foremost supplier of online car rental distribution systems, predict airline ancillary revenue to reach $92.8 billion worldwide in 2019. Furthermore, considering the last few years, CarTrawler estimates a growth of ancillary revenue of 312% since 2010, which was the primary annual ancillary revenue estimate, accounting for $22.6 billion.

**Types of Ancillary Revenues**

Warnock-Smith et al. (2017) further define ancillary revenue using these categories: À la Carte, Commission-Based Products, Frequent Flier Programs (FFP), Advertising and Fare or Product Bundle.

In À la Carte category, the revenue is produced from selling products or services separately, which conventionally have been incorporated in the price of the airline ticket. À la Carte includes the amenities customers can supplement to their air travel experience. The movement started by the low-cost carriers that introduced this practice of disassembling the tariff into several separable components, known as the 'unbundled flight products', which included separate charges for distinct items. Usual activities are: check-in baggage and extra baggage, onboard sales of food and beverages, allocated seats or improved seats within the same cabin, call canter support for reservations, fees charged for purchases made with credit cards, priority check-in, early boarding benefits, on-board entertainment, and wireless internet access.

The second category refers to the commissions received by airline companies regarding the sale of hotel accommodation, car rentals, travel insurance, travel activities and the sale of duty-free and consumer products mainly through the airline's website or onboard (aircraft). At this level, airlines perform as mediators to offer products and services provided by third-party companies. Airlines gather revenue from the sale of the service avoiding taking risks and without having the costs of providing the service itself. The commission-based group mostly encompasses retailing via an airline's website, and also includes the sale of duty-free and products onboard the aircraft. Furthermore, airlines as large brands, seek to build a strong online presence in order to sell commission related products through their own platforms.

Another category within ancillary revenue is the Frequent Flier Program. Besides the purpose of FFP to preserve customers, thus reducing the risk of losing business and any loss of standing customer bases, the sale of frequent flyer points constitutes a great income stream for airlines. This category turns into an ancillary revenue due to the sale of miles/points to program partners such as hotel chains, car rentals, co-branded credit cards, online shopping malls, retailers, communication services and to other companies. For example, in terms of co-

branded credit cards, when an airline cardholder makes a purchase it accumulates miles or points. These miles/points are then paid by the bank issuer and then deposited in the frequent flyer account of the cardholders. Nowadays, this commerce is a considerable revenue stream in terms of ancillary revenues with American Express Delta Sky Miles cardholder accounting for increased spending of $45.4 billion in 2012 to $94.7 billion for 2019. (IdeaWorksCompany, 2019).

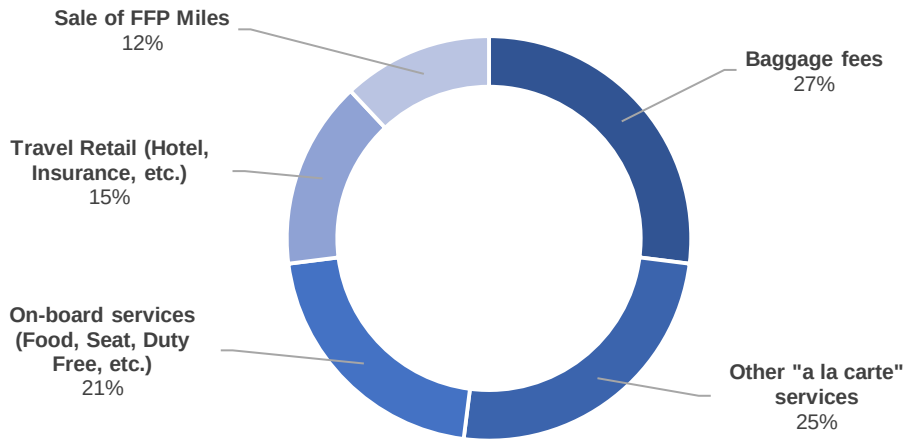
The advertising class was included in ancillary revenues in 2010 and represents any advertising initiative associated with passenger travel. Regarding this topic, the central advertising activities are: revenue created from the in-flight magazine, promotional messages sold in or on an aircraft, loading bridges or gate areas and airport lounges.

Finally, Fare or Product Bundle is when airlines distribute a fraction of the price associated with a class bundle or product bundle as ancillary revenue. This is established by assigning a revenue value to the services included in the bundle, such as checked baggage, early boarding or extra legroom seating.

**Key ancillary revenues**

According to figure 8 below, it is possible to identify the ancillary revenue components that airlines sell the most (IdeaWorksCompany, 2019). The components directly linked to the flight experience count for most of the revenue (%) (i.e. Baggage fees, On-board services and other “à la carte” services). Regarding the sale of travel retail ancillaries, they count for 15% of total airlines ancillary revenue. These values show that the capture of revenue from Travel Retail is not significant when compared to the other categories, demonstrating that airlines are still underexploiting this type of ancillary revenue.

**Figure 8.** *Key Ancillary Revenue Components*




**Source:** *IdeaWorksCompany (2019)*

## 2.5. Customer Trust

As mentioned in the previous section, airlines have given higher priority to the sale of ancillaries related to on-board experience components and consequently have positioned themselves far from the passenger in terms of their experience at the destination, where most of his time will be spent. Airlines, over time, have focused on their core business (i.e. passenger and cargo transportation), however, a wide range of opportunities emerge in an increasingly digital and global world that allows airlines to sell much more than the plane ticket while fulfilling the passenger's needs (Song et al., 2020).

The introduction and implementation of any new product/service necessarily implies the trust of customers who will be the end-users of such product/service (Leninkumar, 2017). In this specific case, for airlines to start selling more commission-based ancillaries related to the experience at the destination, the company needs to gain the trust of passengers so they are aware that after the sale of the airline ticket the main goal of the airline is for the passenger to get the most of his trip.

Corporate trust refers to continuously planning and implementing the procedure of managing and preserving a good brand identity and image to eventually create a positive reputation in consumers' eyes and with all stakeholders (Einwiller and Will, 2002). Successful corporate brands are constructed by businesses talented to sort valuable positive influences with their customers, that is, their principal stakeholders (Kay, 2006). Customers are progressively searching for strong features beyond specific products/services, and consider the principles, associations, skills and identities of corporate brands in their product evaluations (Berens et al., 2005)

Trust towards brands emerges through both a thinking (cognitive) and a feeling (affective) process. Cognitive trust is driven by knowledge and a rational thought process, whereas affective trust is driven by feelings and emotional exchanges (Dowell et al., 2015). Although most studies produce consistent results in terms of how certain factors affect the development of cognitive and affective trust, they give limited consideration to the role of other factors, and importantly, consumer-to-consumer relationships—such as peer influence—in this process. In other words, one of the main gaps in this field is that there is very limited understanding of how the recommendations of others, and the importance assigned to them, may influence a consumer's level of cognitive and affective trust towards brands. (Frank et al., 2015)

## 2.6. Costumer Dynamic Packaging Acceptance

Airlines are starting to incorporate complementary product offers into their websites' ticket booking process seamlessly in one transaction. This has been well-received by customers because it feels natural as a part of the planning process (Rose, 2011).

Dynamic packaging refers to conveniently booking complete travel packages that include any combination of flights, accommodation, airport transfers, or tourist experiences with one click (OpenJawTech. 2017). It is referred to as dynamic because inventory, travel components, and pricing are dynamically determined online in real-time (O'Connell, 2011). It also allows for cheaper prices because opaque package pricing enables companies to pass on more discounts to customers.

There have been several studies regarding ancillary revenue as it has become more widespread in the industry and a more important factor contributing to airline profitability. In table 3 below it is possible to observe some studies regarding ancillaries and dynamic packaging that present an overview of the most relevant findings in this topic

**Table 3.**
*Literature Review of Ancillaries and Dynamic Packages Studies*

| Authors | Study | Country | Methodology | Findings |
|---|---|---|---|---|
| **Ayazlar (2014)** | Dynamic Packaging Applications in Travel Agencies | Turkey | Method of text-mining. Research-based on comparison of three online travel agencies operating in the U.S. in terms of dynamic packaging application (Expedia, Travelocity and Orbitz) | Found that the existing dynamic packaging applications of online travel agencies featured specifications that focused on choice, customization, and flexibility |
| **O'Connell and Bouquet (2015)** | Dynamic packaging spells the end of European charter airlines | United Kingdom | An analysis of Variance (ANOVA) was used to compare the means between different groups of respondents A survey conducted with 154 airline customers in Malta | Found positive results on tourist willingness to purchase travel-related products on airline websites |
| **O'Connell and Warnock-Smith (2013)** | An investigation into traveller preferences and acceptance levels of airline ancillary revenues | United Kingdom | Compare means method was performed. A survey conducted with 159 airline customers residing in 29 countries | Found that travellers were most willing to pay for airport car parking, commission-based ancillaries and additional checked baggage fees from a la carte ancillaries |

| | | | | |
|---|---|---|---|---|
| **Song and Lee (2020)** | An analysis of traveller needs for and willingness to purchase airline dynamic packaging: A Korean case study | South Korea | Method of compare means was performed. A survey conducted with 2030 airline customers in Korea | Found that Korean travellers demonstrated the need for and willingness to purchase commission-based ancillaries when purchasing tickets from airlines |
| **Waguespack and Curtis (2013)** | Ancillary Revenue and Price Fairness: An Exploratory Study Pre & Post Flight | United States | Compare means method was performed. A survey conducted with 233 students from the United States | Found no evidence of perceived price unfairness among existing and potential customers for airlines in general |
| **Wittmer and Rowley (2014)** | Customer value of purchasable supplementary services: The case of a European full network carrier's economy class | Switzerland | Method of compare means was performed. A survey conducted with 249 airline customers in Switzerland | Found that economy class passengers were willing to purchase value-adding supplementary services and FSCs should create new supplementary services available for an additional charge instead of unbundling existing services |

On average, commission-based ancillary products are positively received by respondents.

### 2.7. Benchmarking

This section intends to provide an overview of airlines' top performers regarding ancillary revenues and recent innovation and trends on this matter. Today, FSC's such as Lufthansa or British Airways, generate significant ancillary revenues mostly from a mixture of baggage fees, superior seats, the usage of frequent flyer program and commission-based fees. Concerning LCC's such as Ryanair, Eurowings or Wizz Air, ancillary revenue is approximately 26% as a portion of the operational revenue due to the branded fares, upgrade seats and checked-in luggage. Warnock-Smith et al. (2017) say that traditional airlines are motivated to increase profitability and to preserve passenger satisfaction that is important to sustain passenger yield up. O'Connell et al. (2013) state that LCC's seem to have accomplished the mindfulness of their passengers in accepting additional charges in exchange for lower fares, in the other hand, FSC's still have a path to go through in this concern.

Since IdeaWorksCompany began analysing airline financial statements in 2007, ancillary revenue has grown every year. Eleven years ago, the topten airlines, evaluated by total ancillary revenue, produced $2.1 billion. For 2018, the top ten airline total has reached $35.2 billion (shown in table 4).

**Table 4.**
*Top 10 Airlines – Total Ancillary Revenue (US Dollars)*

| Total Ancillary Revenue - 2018 | | Sources of Ancillary Revenues | | |
|---|---|---|---|---|
| | | Frequent Flyer Program | À la Carte Ancillaries | Travel Retail |
| American | $7 245 000 000 | 77% | 23% | |
| United | $5 802 000 000 | 73% | 27% | |
| Delta | $5 570 000 000 | 74% | 26% | |
| Southwest | $4 049 000 000 | 84% | 16% | |
| Ryanair | $2 801 536 938 | None | 100% | |
| Lufthansa Group | $2 628 328 912 | 32% | 68% | |
| Air France/KLM Group | $2 579 438 796 | 21% | 79% | |
| easyJet | $1 597 900 258 | None | 100% | |
| Spirit | $1 493 108 000 | 3% | 97% | |
| Air Canada | $1 452 733 488 | 39% | 61% | |
| 2018 carrier results were based upon recent 12-month financial period disclosures<br>Local currencies converted to US dollars at July 2018 rates of exchange. | | | | |

**Source**: *IdeaWorksCompany: CarTrawler Yearbook of Ancillary Revenue (2019)*

The top performing airlines in this list were once dominated by low-cost carriers, but traditional airlines are now more present (Table 5, below). Traditional carriers like low-cost carriers enlarged ancillary revenues over the last years as an attempt to increase their traditional revenue by unbundling the traditional airline fare and charging for amenities that were once included within the fare (Škurla et al., 2019).

**Table 5.**
*Top 10 Airlines - Ancillary Revenue per Passenger*

| Annual Results - 2018 (in US dollars) | | Ancillary Source | 2008 Comparison (in US dollars and % increase above 2008) | |
|---|---|---|---|---|
| $50,94 | Spirit | Various | $18,61 | 174% |
| $50,01 | Allegiant | Various | $26,66 | 88% |
| $47,62 | Frontier | Various | $3,70 | 1187% |
| $43,91 | Jet2.com | Various | $19,04 | 131% |
| $41,15 | Qantas Airways | FFP | $15,83 | 160% |
| $36,64 | United | Various | $22,86 | 60% |
| $35,56 | American | Various | $19,86 | 81% |
| $34,74 | Virgin Australia | Various | Not available | |
| $34,28 | Air Asia X | Various | Not available | |
| $32,70 | Hawaiian Airlines | Various | Not available | |
| 2018 and 2008 carrier results were based upon 12-month financial period disclosures.<br>Local currencies converted to US dollars at July 2018 and July 2008 rates for exchange | | | | |

**Source**: *IdeaWorksCompany: CarTrawler Yearbook of Ancillary Revenue (2019)*

Traditional airlines, as Hawaiian Airlines, have rapidly moved to enlarge revenue opportunities related with seats (extra legroom seats), premium economy, and the standard element of assigned seating have become surprisingly routine for this airline category. The appearance of basic economy fares has unlocked the door for traditional airlines to experiment with a list

of à la carte fees. These fares permit airlines like British Airways or Air France to compete against low-cost carriers.

**Innovation and recent trends**

Parry-Ernst (2017) Manager Director of Ancillary Revenue at Air New Zeeland, say that "Connectivity, pricing and distribution platforms, along with personalisation, will be key to optimising ancillary revenues" and continues by stating that "on-board last minute, personalised ancillary sales encounter this increasing passenger need and in-flight Wi-Fi provides connectivity to the airline's pricing and distribution systems, enabling real-time sales and fulfilment of in-flight ancillary".

In table 6 below is summarized some recent innovation and trends:

**Table 6.**

*Innovation and recent trends*

| Airline | Ancillary Categories | Innovation |
|---|---|---|
| **Delta** | À la carte service and Travel Retail | In 2012 teamed up with Amazon.com to permit passengers to surf the Amazon.com platform for free. Delta then receives a percentage of any items acquired. |
| **Southwest** | À la carte service | Let passengers to pay for in-flight amenities with their Amazon.com account, allowing passengers to rapidly and suitably access services on board the flight. |
| **Finnair** | Travel Retail | Has placed its new 'Nordic Sky' in-flight platform, as a channel to provide new services to passengers, as well as to increase ancillary revenues. The platform can be accessed on passengers' own devices and has amenities such as destination info, customer care and pre-order duty-free shopping - with items acquired being delivered to the passenger's seat on their return flight. |
| **Air China** | Travel Retail | Partnered with online retailer JD.com to provide passengers a range of goods that they can buy via the in-seat IFE system for delivery to their homes |
| **AirAsia Group** | À la carte service | The airline will open a Santan café which will feature inflight food. |
| **Air France** | À la carte service | Use a software named Interactive Mobility, recreating a "Netflix style" experience for the passengers who might have limited access to their in-flight entertainment. |
| **Allegiant** | Travel Retail | Is developing a 500-room hotel resort in Florida. IdeaWorksCompany estimates the resort will add $6+ per passenger of ancillary revenue system wide. |
| **easyJet** | Travel Retail | Has signed a partnership with GetYourGuide to offer the passengers access to multiple tours and activities, creating a potentially ancillary revenue stream. Passengers travelling from one city to another can book different tours of the arrival city, the activities being booked on either a dedicated website or the passenger mobile app |

| | | |
|---|---|---|
| **Iberia** | À la carte service | Has set up partnerships with corporations provide media content, focusing on opening a new digital touchpoint, allowing passengers to buy premium content or exclusive offers for the destinations such as entry to museums or different events |
| **Jeju Air** | Travel Retail | Jeju offers local destination-based Travel Lounges to promote the sale of travel-related services. In some destinations, these are physical offices, such as Danang, Guam, Hong Kong, Kota Kinabalu, Saipan and Vladivostok |
| **Jet2.com** | Travel Retail | Airline staff are stationed at airports and resorts to help guests in every way. Arriving flights are greeted, guests are directed to motor coaches, and concerns are addressed. At the resorts, customer satisfaction is assessed, excursions and holiday extras are recommended and booked, and on-property check-in is available for the return flight. This service allows Jet2holidays customers to check-in baggage at their hotel, letting them enjoy their final day, bag and hassle-free |
| **Virgin America** | À la carte service | Made a partnership with LinkedIn to allow business class passengers to watch business-skills videos at LinkedIn owned Lynda.com for free. |
| **Ryanair** | À la carte service | The pricing of Priority Boarding can now vary by timing of the sale. The capacity remains capped at 50% of seating. Distinct price levels can occur for the first 20%, the second 20%, and the final 10% of aircraft capacity |
| **Southwest** | À la carte service | During 2018, the company implemented a variable pricing model for EarlyBird Check-In based on the length of the flight and the historical popularity of EarlyBird Check-In on the route. Price points went from a fixed $15 fee to $15, $20 and $25 |
| **Thomas Cook Group Airline** | Travel Retail | For 2019, the company will introduce HotelShop, which will allow it to offer more personalized services together with partner hotels, like espresso machines or Champagne on arrival |

### Summary of Literature Review

From the previous literature review, it was identified that airlines have changed over time. In a succinct, it is possible to say that initially, they consisted of selling a point-to-point airplane ticket for a fixed amount, then, classes were introduced to offer different quality of service at different prices and with the appearance of the internet, the sale price began to vary according to the date of the trip and the advance with which the ticket was purchased. At that point, the price of services included varied from ticket to ticket within classes for airlines to be able to sell cheaper to those who did not need all the services and to sell more expensive to those who needed more services. Later, airlines commenced to realize they had the opportunity to sell other services and products to passengers related to the travel experience that they needed to buy, and airlines were well-positioned to provide them. The importance that ancillaries

already have nowadays in the revenues of some airlines is such that, given the existing competition, no airline can afford not to exploit this revenue area.

Hence there is still the opportunity for airlines to make their websites the obvious place for their passengers to acquire, not only airline tickets, but everything they will need to book for having the best experience at their destination. Personalised advice and the resulting dynamic packages are a service that has not been properly explored by airlines since what has been done so far is mainly short travel packages with few options to offer to the passenger. To this end, it will be indicated and justified what airlines will have to do in order to achieve this objective and why passengers will make the purchases mentioned above directly on their website. In addition, another innovative idea will be presented in this thesis, which could lead to important gains for airlines regarding the resale of airline tickets. These points mentioned above meet the potential identified regarding ancillary revenues while differing from what has been done in the Literature Review.

CHAPTER 3

# Methodology

This chapter presents the methodological framework of the thesis. It will address the design of the survey, the type of research that was done, how the data was collected, how it was analysed and which tools were used. It will contemplate the methods used that will make it possible to draw valid conclusions based on the respondents' answers.

## 3.1. Methodological Framework

An online survey was performed to collect the data that will support the validations intended to be carried out by airlines, namely in the field of innovation of new products and services. The survey identifies the type of information that passengers want to obtain when organizing their trip, the channels search for it, the difficulty they have in obtaining it, the importance that passengers consider for being well informed and the trust they currently have on airlines as an entity that can help them solve the problem of travel organization. The survey was also used to test other innovative propositions of action to be taken by airlines in order to find new sources of revenues and to improve the quality of the service provided to the customer. As the author was working at TAP, it was intended to also assess some specific measures that could improve its competitiveness and profitability.

The type of questions that were chosen to design this survey were based on the following reflections:

- What can the airline do to help the customer get the most out of his trip and how can this translate into increased revenue?
- Considering that the sale of ancillaries requires the passenger to buy the airline ticket directly on the airline's website, how is it possible to increase sales on direct channels?
- Considering the significant differences in the ticket fare for similar seats on the same flight, to what extent it may be a business opportunity to create a process to resell the ticket fare that maximizes the flight revenue while minimizing the airlines' overbooking problem?

## 3.2. Data Collection Method

Based on the mentioned reflections, the quantitative method of data collection was used by creating an online survey. This option for data collection was chosen since the survey allows

a high representative level, has a good statistical significance, offers little subjectivity to respondents and has accurate results (Durga, 2019).

The objective was to make the survey available to 300 people, preferably travelling by plane at least once a year. The survey was active for about 2 weeks from May 14th to May 28th (2020). A pre-test was done before going live with some people in order to adjust the survey and to turn it more user-friendly. Respondents took an average of 7 minutes to complete it anonymously and all data collected is confidential and for exclusive use for this master's thesis.

A mix of different questions was employed:

- 14 multiple-choice questions;
- 8 questions that respondents had to answer on a Likert scale;
- 6 checklist questions;
- 1 multiple choice question grid;

For the variable types, two Likert scales were chosen, 5 and 10 points. It was decided to choose these two scales because, for different types of questions, different scales are suitable. By using the 5-point scale, it was considered that it would be simpler for the respondent to answer on this scale regarding a question in the form of a grid multiple-choice with several rows and 5 columns to assign a level of importance. It would be more confusing to answer on a more extensive scale, which would require the addition of more columns, and which consequently would make the respondent impatient when feeling too complexion in a question (Sachdev & Verma, 2004).

Regarding the 10-point scale, this was considered in isolated questions, which allows less confusion by the respondent. When assigning his answer, the respondent only has to choose the circle corresponding to his intention. Still about the Likert scale of 10 points, for the type of questions I used, this scale allows the respondent to have greater precision in his answer as well as a better variance (Correia, 2018).

According to Morgan (2018), from a statistical point of view, there is no inconvenience in using two different types of scales, especially when the two variables are not going to be directly related. Morgan also argues that the use of two scales is not critical when the respondents are in general educated as they are in this sample.

### 3.3. Data Analysis Method

In a first phase, the data were transformed and processed in Microsoft Excel 2013 in order to be able for being inserted in IBM SPSS Statistics. The SPSS software was used since it allows to efficiently analyse quantitative data through different statistical tests.

Statistical tests used:

- **Spearman's correlation**
  - It permits to evaluate the relationship between two ordinal variables by measuring their degree of correlation (e.g. a higher trust by the passenger towards the airline is associated with more acceptance of travel packages).
- **One-way ANOVA**
  - It is a statistical test that permits to observe if there are significant differences between groups of independent variables in relation to other variables
- **Independent Samples T-Test**
  - It is a statistical test that permits to observe if there are significant differences between two categories within a group of independent variables in relation to other variables

CHAPTER 4

# Data Analysis

## 4.1. Descriptive Statistics

This survey segmented the respondents by gender, age, professional status, the region of residence, frequency of travel and the purpose of travel. Thus, it was tried to segment passengers in order to understand if significant differences are depending on the type of passenger.

**Table 7.**
*Distribution of Descriptive Statistics*

| Variable | Category | Percentage | Frequency |
|---|---|---|---|
| **Gender** | Male | 55% | 164 |
| | Female | 45% | 136 |
| **Total** | | **100%** | **300** |
| **Age** | 18-30 | 29% | 86 |
| | 31-45 | 20% | 59 |
| | 46-65 | 31% | 94 |
| | >65 | 20% | 61 |
| **Total** | | **100%** | **300** |
| **Region** | Europe | 100% | 300 |
| **Total** | | **100%** | **300** |
| **Professional Situation** | Employed | 62% | 185 |
| | Student | 8% | 25 |
| | Self Employed | 14% | 41 |
| | Retired | 16% | 49 |
| **Total** | | **100%** | **300** |
| **Frequency of Travel** | Weekly | 3% | 10 |
| | Monthly | 10% | 31 |
| | Once a Trimester | 26% | 79 |
| | Once a Semester | 30% | 91 |
| | Once a Year | 27% | 82 |
| | Never | 2% | 7 |
| **Total** | | **100%** | **300** |
| **Purpose of Travel** | Leisure | 80% | 239 |
| | Business | 20% | 61 |
| **Total** | | **100%** | **300** |

As for the distribution by gender, observing the table 7 above, out of a total of 300 respondents, 164 are male, which corresponds to 54.7% of the total sample and 136 are female, completing the remaining 45.3%.

According to table 7 above, it is possible to observe visually the distribution of percentages by age interval. This distribution was intended to divide the age intervals proportionally to make the sample as heterogeneous as possible.

Regarding the respondents' region of residence, all of them belong to the European continent, that is, 300 people.

Concerning the respondents' professional situation, the vast majority are employed. According to table 7 above, the employed summed with the self-employed situation reaches the frequency of 226, which corresponds to 75.4% of the sample.

One of the aspects that were considered important was to segment the surveyed passengers about the frequency of which they travel annually. Thus, observing the table 7 above, it is possible to verify that the majority of passengers travel between once a trimester to once a year, thus making up to 83.9% of the sample.

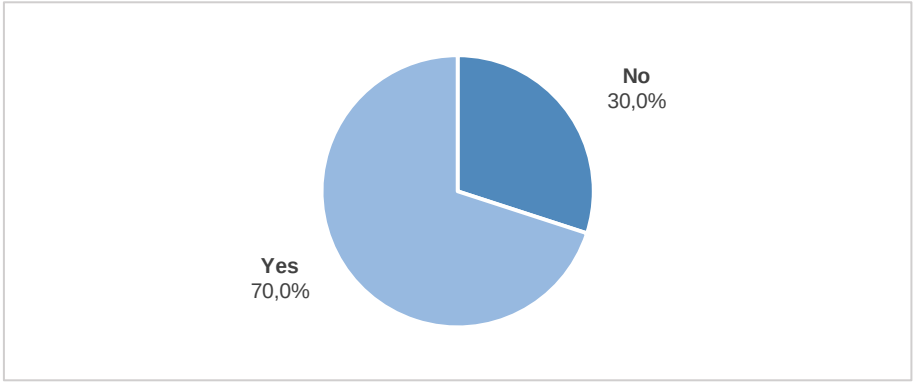
Finally, concerning the segmentation of the passenger, it was considered important to identify the purpose of the travel, that is, whether is business or leisure. Therefore, looking at table 7 above, 79.7% of the sample typically travels in Leisure when compared to the remaining 20.3% who travel in Business. However, the frequency of business passengers' travel per year is higher compared to leisure passengers, which means that in terms of flown flights, the business share is considerably more than 20.3%.

### 4.2. Analysis of TAP

To have a more concrete idea of TAP's reality, some questions were designed to get to know better the passenger who travels with TAP and what he considers about the company.

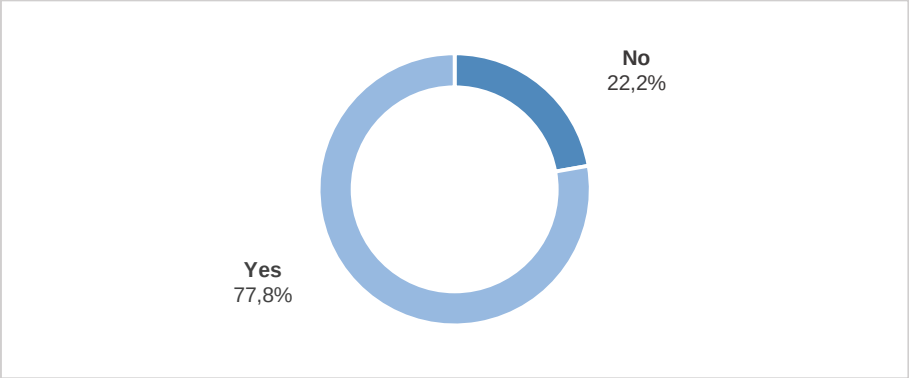
In figure 9 below, it appears that 70.0% (n = 210) of respondents usually travel on TAP Air Portugal. This particularly high value is justified due to the majority of respondents being resident in Portugal and consequently ending up being very exposed to the flights operated by the company.

**Figure 9.** *Do you usually fly in TAP Air Portugal?*



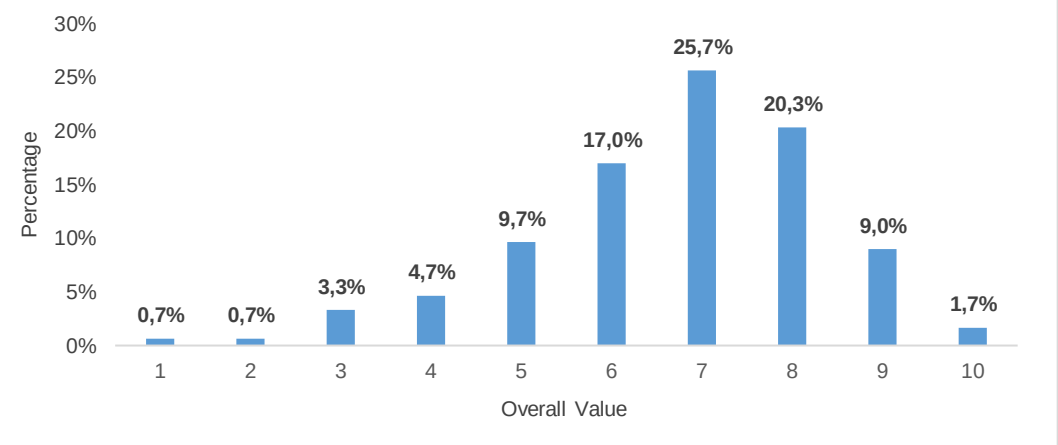
However, as it was intended to determine the passengers who remember their experience of flying with TAP recently, despite not flying frequently, respondents were asked if they flew in the last five years with TAP and remember the experience. In this way, it was possible to capture some of the 30% (n = 90) of respondents who do not usually fly with the airline. According to the figure 10 below, out of the 90 respondents who answered that they do not fly frequently with TAP, 77.8% (n = 70) answered that they flew on TAP in the last 5 years and remember the flight experience.

**Figure 10.** *Did you fly with TAP Air Portugal in the last 5 years and remember your flight experience?*




Then, these passengers were asked how they evaluate the overall value offered by TAP Air Portugal in a general manner. The result of this variable is shown in figure 11 below:

**Figure 11.** *How do you evaluate the overall value offered by TAP Air Portugal?*

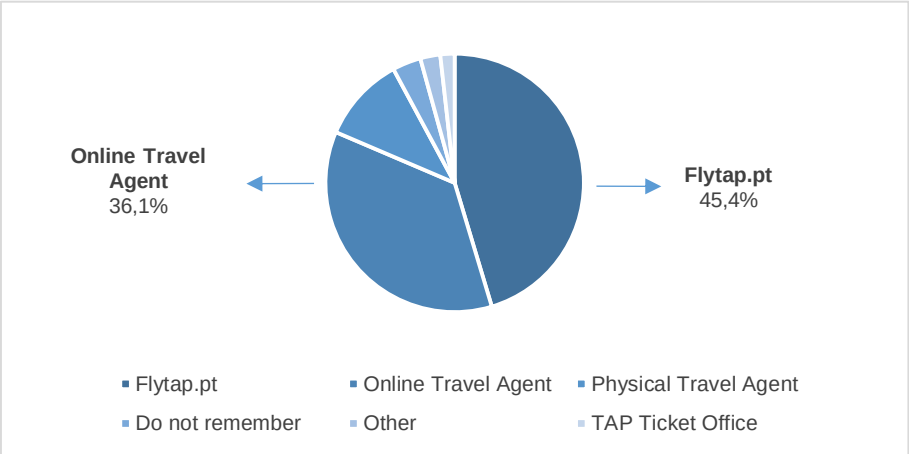



With a median of 7 and a mean of 6.70, it is possible to conclude that the perception that passengers have of the service provided by TAP is acceptable. Nevertheless, has a great potential for improvement.

### Analysis of the ticket purchase process at TAP

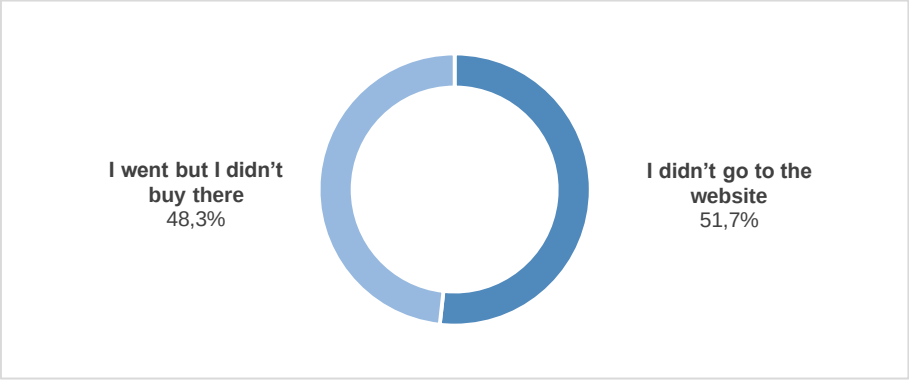
According to figure 12 below, it is possible to observe the distribution of tickets sold by channel. Of the 280 respondents who remember to fly on TAP, 45.4% (n = 127) answered that they usually buy the airplane ticket on Flytap.pt (TAP website) and 36.1% (n = 101) answered that they usually buy the ticket with an Online Travel Agent.

**Figure 12.** *Where do you usually purchase your flight ticket when flying with TAP Air Portugal?*




Then, passengers who did not buy the airplane ticket directly in TAP's website were asked whether they went to the website and did not buy there or if they did not even visit flytap.pt. Figure 13 below shows the result of this variable:

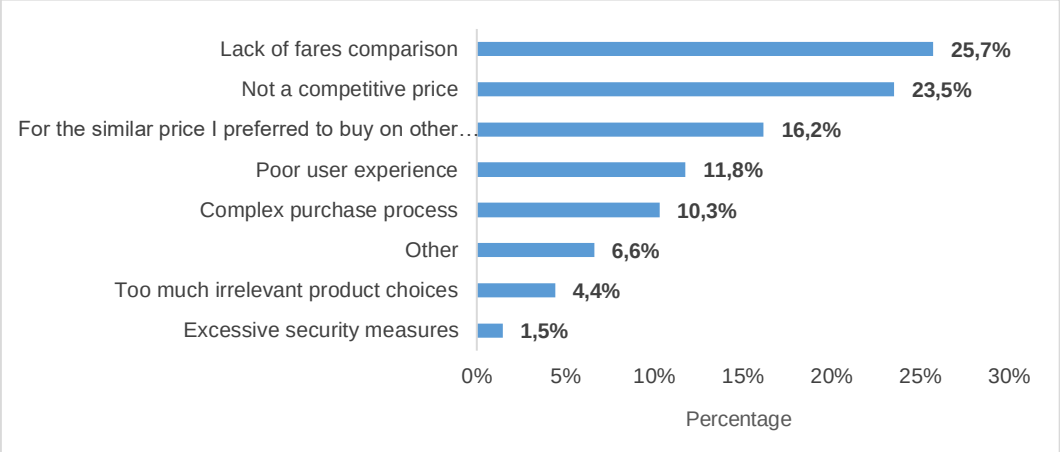
**Figure 13.** *Did you go to flytap.pt before purchasing your ticket?*




It was considered important to understand why passengers decided not to buy their airplane ticket directly on TAP's website. What led passengers to go to flytap.pt website and choose to buy elsewhere or to not even visit TAP's website? Thus, it was asked the passenger why he

did not buy the airplane ticket directly on the company's website. Figure 14 below illustrates the following:

**Figure 14.** *Why you did not buy the airplane ticket directly in flytap.pt?*



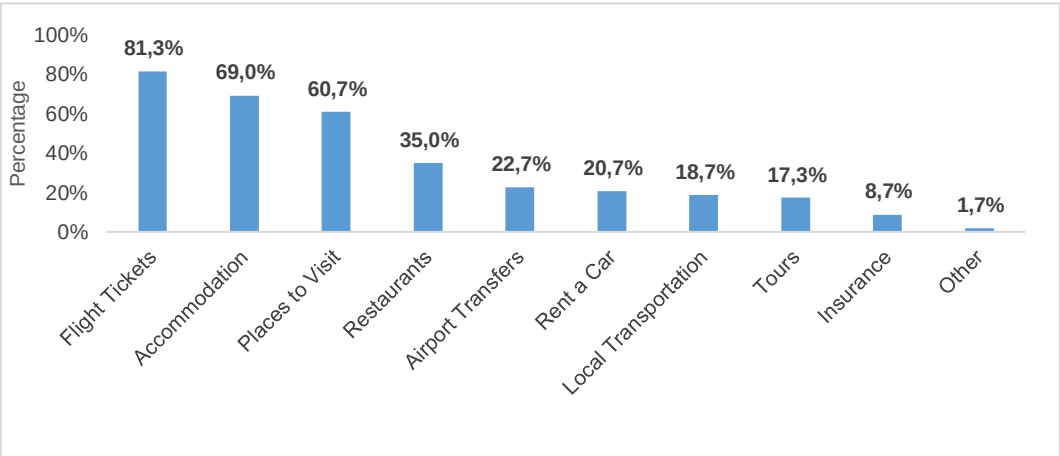

When looking at figure 14, it is possible to observe that 25.7% (n = 35) of passengers consider that the main reason for not buying the airplane ticket directly on flytap.pt is due to the lack of fares comparison. The other main reasons are because it does not have a competitive price (23.5%, n = 32) and for a similar price, it prefers to buy elsewhere (16.2%, n = 22).

### 4.3. Analysis of the information used by passengers

#### Information sought

To get to know the passenger's journey better when planning a trip, it was asked the 300 respondents what kind of information they search. The question was asked so that the respondent could choose various sorts of information in a "checklist" type of question.

**Figure 15.** *Which type of information do you search when booking/planning a trip?*

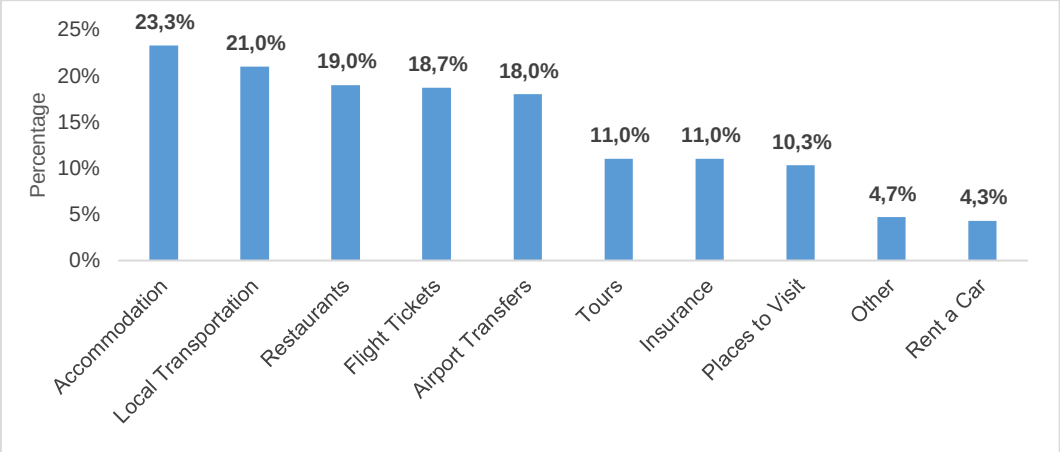


From the analysis of figure 15 above, it is possible to observe that the information most sought by the passenger is Flight Tickets with 81.3%, Accommodation with 69.0% and Places to Visit with 60.7%.

**Information most difficult to find**

Then, it was questioned which of the information is usually more difficult to find. From the figure 16 below, it became known that Accommodation leads the category of information most difficult to find in absolute terms with 23.3%, followed by Local Transportation with 21.0% and Restaurants with 19.0%.

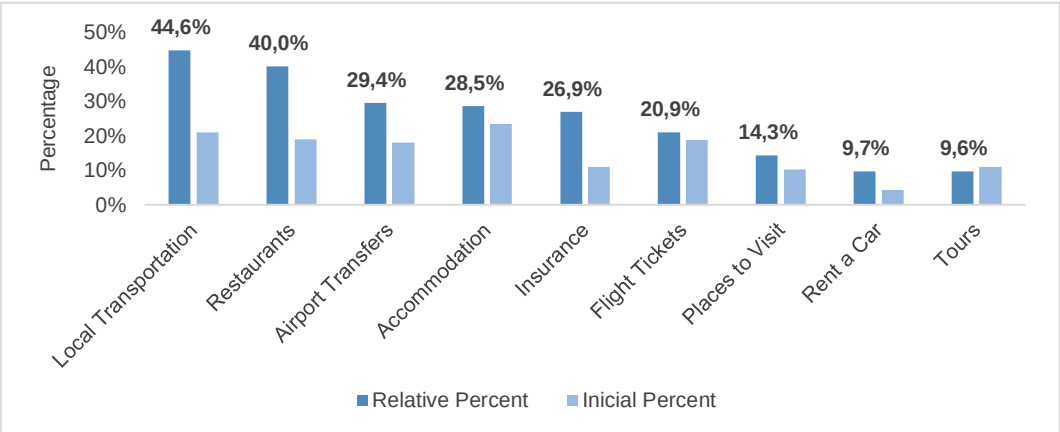
**Figure 16.** *Which of these is usually more difficult to find?*




One of the major challenges for passengers on their journey is to obtain information regarding transportation at the destination, with Local Transportation and Airport Transfers making up a significant share of this variable. Restaurants and Flight Tickets complete the categories that most present difficulties in the opinion of passengers.

However, to measure in real terms the difficulty that passengers have in obtaining the information they search, the same type of analysis was carried out in relative terms. In other words, for the subgroup of passengers looking for a certain type of information, the difficulty they got in that specific type of information was explored.

**Figure 17.** *Difficulty finding information in relative terms*



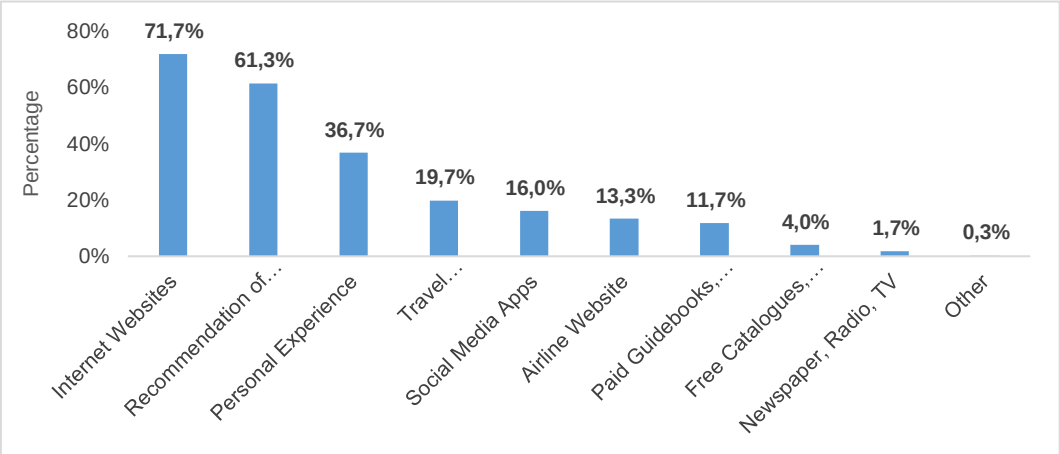
According to figure 17 above, it can be noticed that with this analysis the order of the most difficult information to find has changed considerably and in general, the percentages have increased. Out of the passengers looking for Local Transportation, 44.6% identified it as being difficult to obtain. It should be emphasized that the information regarding transport at the destination represents a major difficulty for passengers. Restaurants that in the previous analysis made up 19.0% of the sample, are now in the second position with 40.0% and Airport Transfers now occupies the third position with 29.4%.

### 4.4. Analysis of the information sources used by passengers

#### Used Sources

One of the topics that were considered important to address was concerning the sources of information that passengers use when travelling. Of the different sources of information used, figure 18 below illustrates the following:

**Figure 18.** *Where do you search in order to obtain such information?*




From the figure 18, it is possible to observe that most respondents use Internet Websites (71.7%), Recommendation of Friends / Relatives or Colleagues (61.3%) and Personal Experience (36.7%).

#### Sources importance

Now that the sources of information that passengers use the most have become known, it is important to understand the importance that passengers attribute to them. Respondents were

asked on a scale of 1 to 5 to attribute the importance form *Not at all Important* to *Extremely Important***,** respectively. According to table 8 below, it can be noticed that the source of information that passengers attribute with the greatest importance is Personal Experience and Recommendation of Friends/Relatives or Colleagues.

**Table 8.**

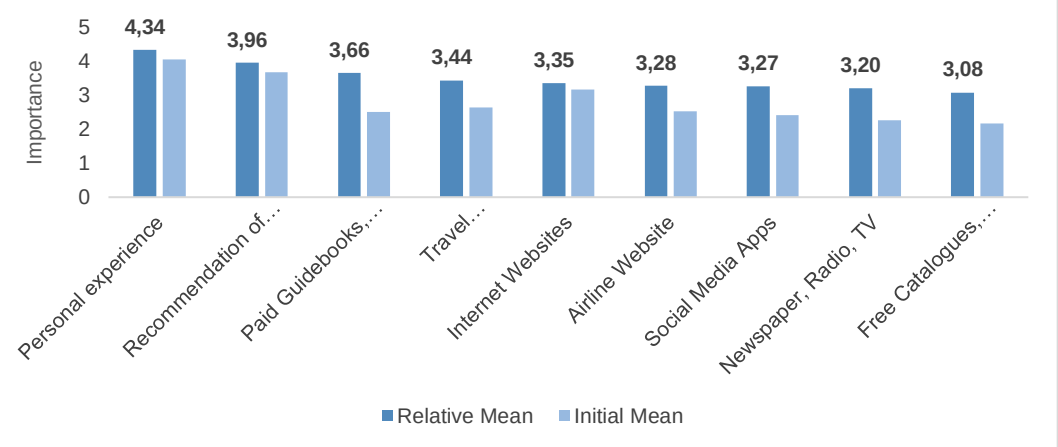
*Distribution by the importance of information source*

| | RFCR | PE | IW | AW | SMA | TA | PG | NRTV | FCB |
|---|---|---|---|---|---|---|---|---|---|
| Mean | 3,68 | 4,05 | 3,18 | 2,52 | 2,41 | 2,65 | 2,50 | 2,27 | 2,16 |
| Median | 4,00 | 4,00 | 3,00 | 2,00 | 2,00 | 3,00 | 2,00 | 2,00 | 2,00 |
| Variance | 1,26 | 1,32 | 0,98 | 1,22 | 1,13 | 1,25 | 1,27 | 1,13 | 0,95 |
| Std. Deviation | 1,12 | 1,15 | 0,99 | 1,10 | 1,06 | 1,12 | 1,13 | 1,06 | 0,98 |
| Interquartile Range | 1,75 | 1,00 | 1,75 | 1,00 | 1,00 | 1,75 | 1,00 | 2,00 | 2,00 |

**Legend:**
RFCR: Recommendation of Friends/Relatives or Colleagues
PE: Personal Experience
IW: Internet Websites
AW: Airline Website
SMA: Social Media Apps
TA: Travel Agencies/Tourism Offices
PG: Paid Guidebooks, Magazines
NRTV: Newspaper, Radio, TV
FCB: Free Catalogues, Brochures

Another angle of analysis, about this topic, is to present the importance of the sources of information according to their choice. That is, of the respondents who use a certain source, what was the importance they attributed to that particular source. According to figure 19 below, it is observed:

**Figure 19.** *Relative distribution by the importance of information source*




There is a slight increase in the importance attributed to each of the information sources. It means that passengers using a certain source generally give a better rating to that specific source. There is a considerable rise in the category of Paid Guidebooks/Magazines, with

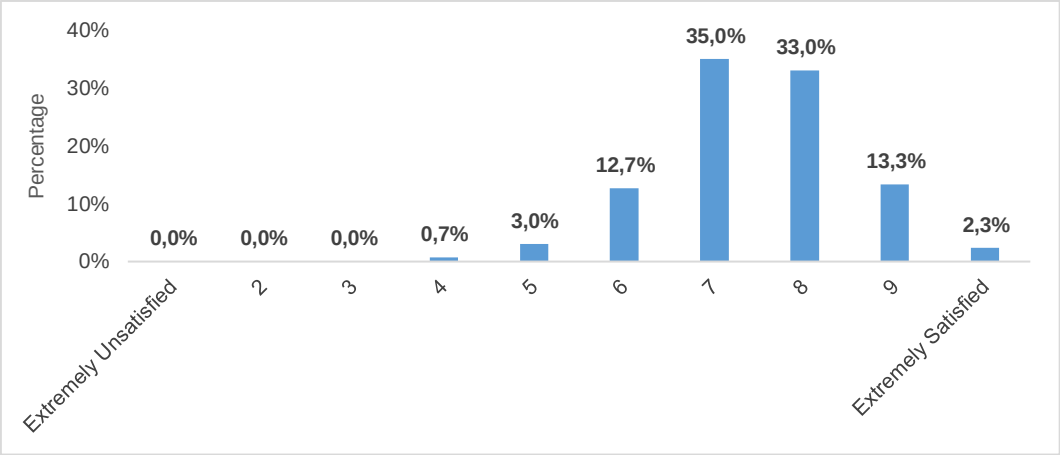
Personal Experience and Recommendation of Friends/Relatives or Colleagues remaining the most important sources of information in the eyes of respondents.

Regarding the less conventional sources, which presented a lower frequency, it possible to observe that the median and the mean rose considerably. This is explained by the fact that most respondents who do not use these sources are unaware of the importance they may have and, consequently, due to lack of knowledge, they attribute lower importance.

### 4.5. Analysis of passenger satisfaction based on the information obtained

Another extremely important topic is measuring the satisfaction obtained by the passenger regarding the gathering of information that normally obtains when planning a trip. Thus, passengers were asked to scale their level of satisfaction from 1 (Extremely Unsatisfied) to 10 (Extremely Satisfied). Figure 20 below illustrates the representation of this variable:

**Figure 20.** *How satisfied do you usually get with the information you obtain?*



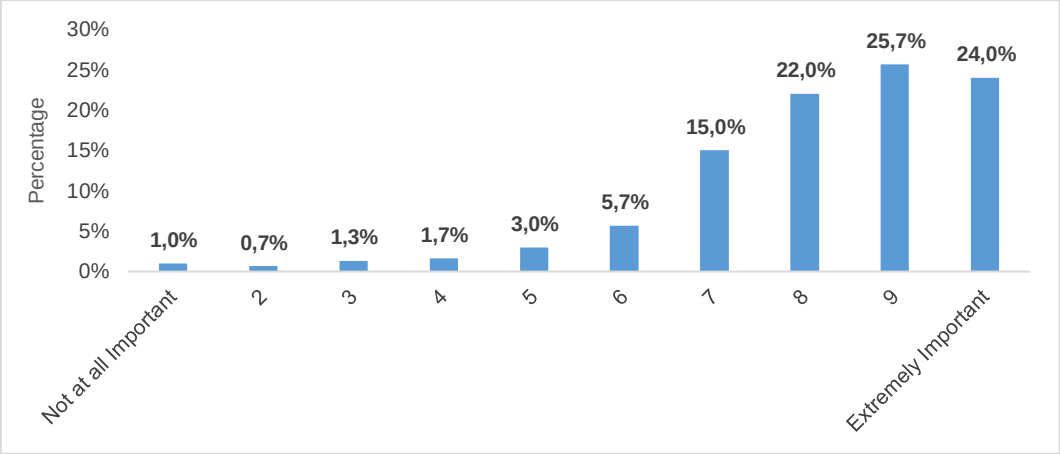

It should be noted that the median for this variable is 7 and the mean is 7.46. These values show that for most passengers the process in obtaining information when booking a trip is positive. However, this variable also reveals that there is a potential for improvement as the next variable shows how important it is for passengers to be well informed.

### 4.6. Analysis of the need for passengers to be well-advised

Formerly, the topic that was addressed is the importance that passengers attribute for being well-advised regarding the different types of information they need to organize their trip. This topic was considered indispensable to know the extent to which the passenger values being well advised. As previously mentioned, there is a gap in the market regarding this type of service and thus it justifies addressing this question.

In figure 21 below, it is possible to observe the following:

**Figure 21.** *How important it would be for you to be wisely advised when planning your trip?*




It should be noted that most respondents want to be well advised when booking/planning their trip. Figure 21 mirrors that, with a median of 8 and a mean of 8.14, exploring this market has enormous potential.

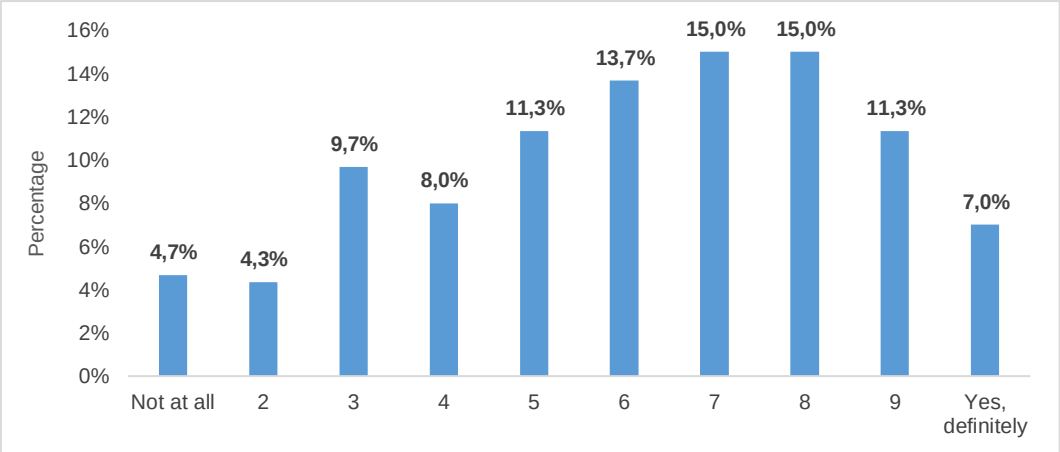
### 4.7. Analysis of trust, reliability and acceptance of new products and services

#### Trust

Passengers were asked whether they consider if nowadays, after selling an airplane ticket, airline's main goal is for the passenger to make the most of his trip. According to Dowell et al. (2015), the design of this question intended to observe the cognitive trust associated to passengers towards airlines.

According to figure 22 below, it is possible to observe the following:

**Figure 22.** *Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip?*



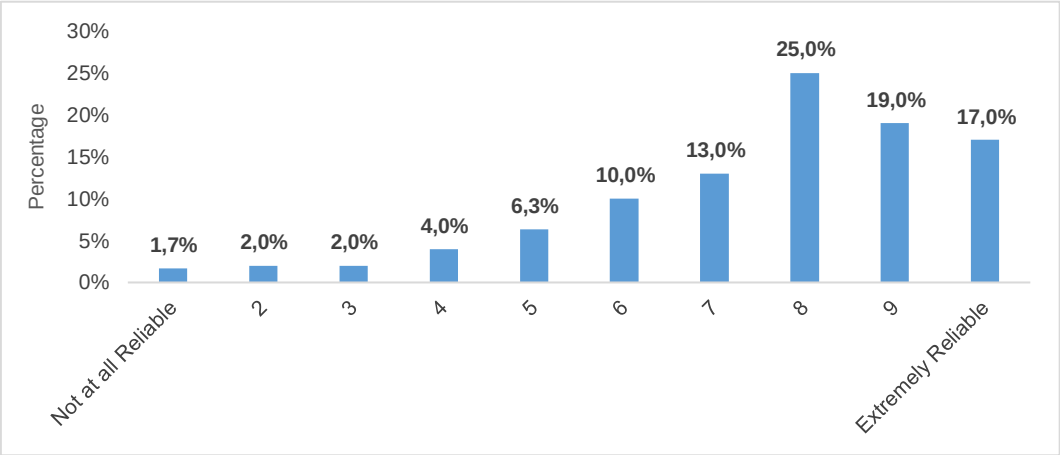
With a median of 6 and a mean of 6.10, this variable shows that passengers doubt that the airline is concerned with the fulfilment passengers get from their journey experience. This is the result of the position taken by most airlines over time, distancing themselves from the passenger, so that the passenger does not look at airlines as a reliable travel partner.

**Reliability**

The topic of reliability is intended to measure, in a scenario where the airlines provided all the necessary information, free of charge if the passenger considered that such information would be reliable. This way it was possible to get a perception of the view that passengers have about the specialization of the airline on this type of advisory service.

According to figure 23 below, the following is observed:

**Figure 23.** *How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip?*

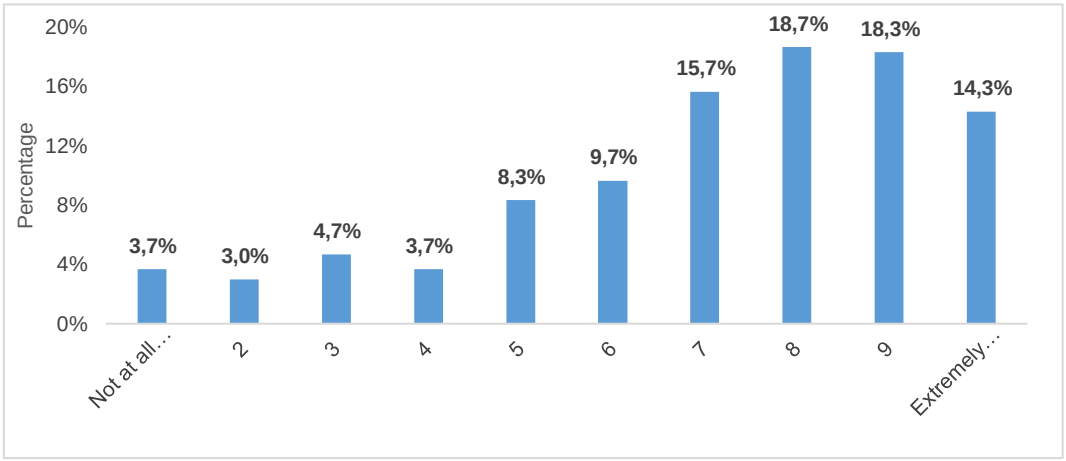



Since this variable has a median of 8 and a mean of 7.51, there is some acceptance and reliability towards the airline in eventually having the necessary resources to specialize in the matter.

**Acceptance of new products and services**

Passengers were asked whether it would be useful if the airline provided customized travel packages based on their personal preferences. This variable can be observed in figure 24 below:

**Figure 24.** *How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences?*




With a median of 8 and a mean of 7.01, it is possible to state that this variable presents a positive value regarding the acceptance of personalized travel packages by passengers.

**Spearman's Correlation Coefficient: Trust & Reliability**

To verify whether there is a positive correlation between these two variables, Spearman's correlation coefficient was performed, and it was verified that it is statistically significant with a degree of positive correlation but of low impact, rs = 0.35, p <0.001. It means that the more a person believes that nowadays after the sale of the airline ticket the airline's main goal is for the passenger to get the most his trip, the more the passenger also believes that the information provided by the airline will be reliable. The reverse is true proportionately. Vlasenko, Dmitry. (2019) Considers that this degree of correlation is moderate.

**Spearman's Correlation Coefficient: Trust & Acceptance**

It is also important to measure the degree of correlation between the acceptance of travel packages and the trust that passengers have in the airline that the main objective is that after the ticket is sold, the passenger gets the most of his trip. Through Spearman's correlation coefficient, once again there is a statistical significance for a positive but low correlation, rs = 0.28, p <0.001. Thus, a higher trust by the passenger towards the airline is associated with more acceptance of travel packages.

**Spearman's Correlation Coefficient: Acceptance and Reliability**

Concluding this sub-chapter, it is justified to correlate the variable acceptance with reliability. Once again using Spearman's correlation coefficient, a statistical significance was found between the acceptance of travel packages and the reliability of the information provided by the airline for a positive correlation, rs = 0.72, p <0.001. Thus, a greater belief on the part of

the passenger that the information provided by the airline is reliable is associated with a greater acceptance of travel packages.

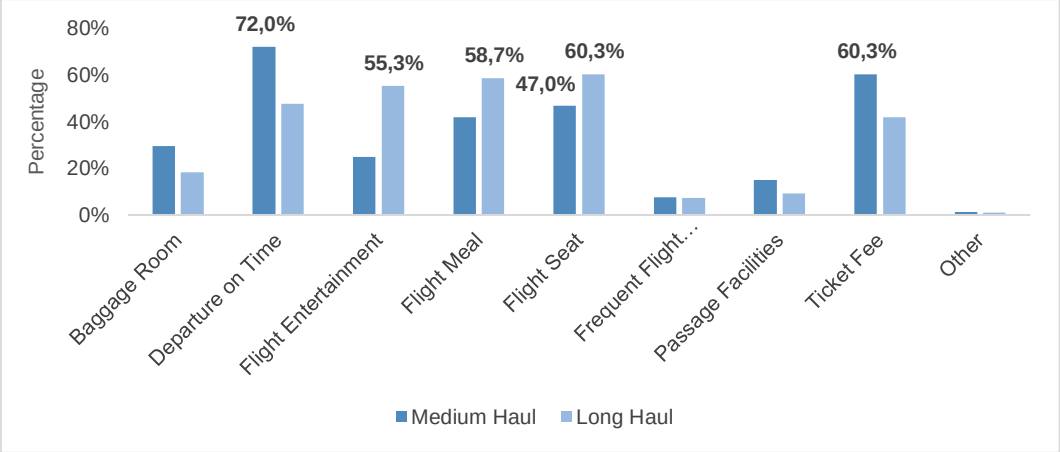
### 4.8. Analysis of the types of products and services

Concerning the types of products and services that passengers most feel the need to have when making their journey, it was analysed according to three contexts. First, for the products and services on-board in medium and long-haul flights. Second, the category of non-air products and services do passengers consider most important, that is when passengers are not flying.

#### Medium-haul vs. Long-haul

Thus, passengers were asked to choose exactly three categories of air products and services when flying medium-haul vs. long-haul. According to figure 25 below, it is observed:

**Figure 25.** *Air products and services – Medium-haul vs. Long-haul*

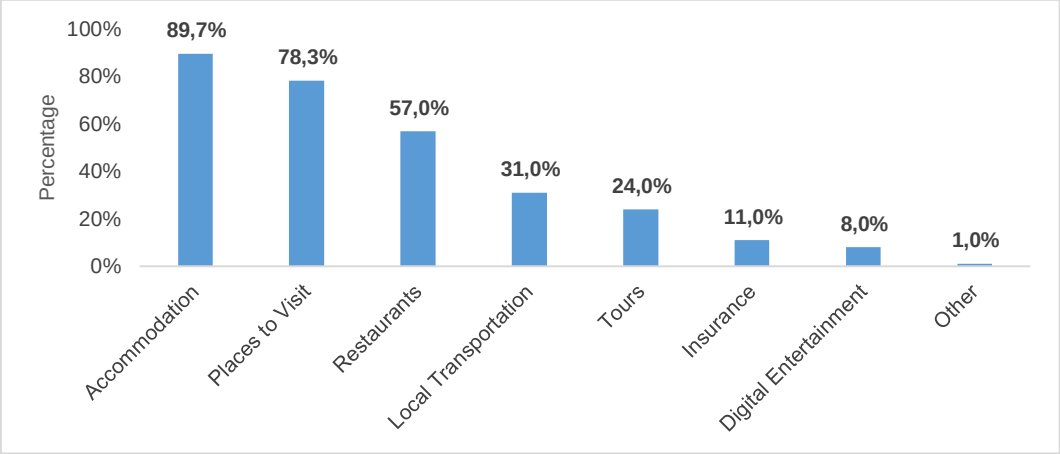



Looking at the figure, it is possible to observe that the type of products and services most valued by passengers when flying medium-haul is Departure on Time (72.0%, n = 216), followed by Ticket Fee (60.3%, n = 181) and Flight Seat (47.0%, n = 141). Regarding long-haul flights, the category most appreciated by passengers is Flight Seat (60.3%, n = 181), Flight Meal (58.7%, n = 176) and Flight Entertainment (55.3%, n = 166).

#### Non-air products and services

Regarding non-air products and services, respondents were asked to choose exactly three categories from a list presented under a checklist form. Thus, according to figure 26 below, it is possible to have a graphic illustration of this variable:

**Figure 26.** *Non-air products & services preferences*



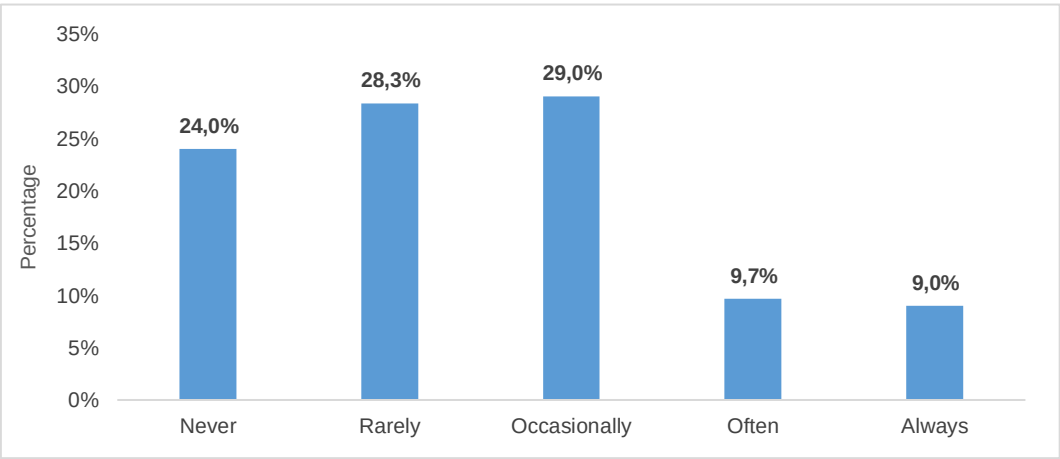

Respondents consider Accommodation (89.7%, n = 269) to be the most significant non-air category when traveling by airplane, followed by Places to Visit (78.3%, n = 235) and Restaurants (57.0%, n = 171).

### 4.9. Analysis of the resale acceptance of airline tickets

The last topic that was analysed concerns to the potential opportunity of resale the airplane ticket of the passenger for a different period of time. That is, would a passenger be interested in buying an airplane ticket where the airline could change his flight to the previous day or to the day after, as long as it was refunded?

According to figure 27 below, it is possible to observe this variable:

**Figure 27.** *Would you buy an airplane ticket where the airline could change your flight to the previous day or the day after, as long as you were refunded?*




Since passengers have different preferences and motivations it was expected that the acceptance was not unanimous. Meanwhile, occasionally is the category of answer that is the

most given accounting for 28,0% of the sample. What matters to understand with this variable is the percentage of people that would trade their ticket for the airline to resale to a passenger that is available to pay a higher fare. Considering that: 9,0% would Always (100%) change it, 9,7% would Often (50%) change it, 29,0% would Occasionally (25%) change it and 28,3% would Rarely (10%); by summing these prediction percentages of willingness to change the ticket it is achieved the 24,0% that represents a considerable percentage to potential implement this business idea.

CHAPTER 5

# Discussion

In this chapter, three Business Implications supported by the Literature Review and the Data Analysis will be discussed. Starting with *Business Implication I*, which proposes an innovative revenue stream concerning personalized advice and dynamic travel packages. Formerly, *Business Implication II*, which identifies the reasons for passengers not to acquire the airplane ticket directly with the airline and suggests the approach that should be taken by airlines in order to increase sales on direct channels and decrease distribution costs. Lastly, *Business Implication III*, which aims to maximize the revenue of airplane tickets sold on every route through the application of an innovative idea which is the resale of airplane tickets.

## 5.1. Business Implications I – Personalized Advice & Dynamic Travel Packages

What should airlines do to help the passenger get the most of his trip while at the same time capturing additional revenue for the company? To better explore the possible answers to this question, some alternatives were given to the respondents in the survey and some insights were provided that can validate the business implications of the Personalized Advice & Dynamic Packages.

The first reflection concerns the fact that passengers consider that is very important to be well advised. Regarding the question analysed in section 4.7. *"How important it would be for you to be wisely advised when planning your trip?"*, on a scale of 1 to 10 the median was 8 and mean 8,14. These values demonstrate the need and interest of passengers in having advice that could translate into a better trip experience.

Formerly, in section 4.6. it was patent that the passengers reveal some difficulty in obtaining the information they need to accurately plan their trips. By analysing the answers given to the question: *"How satisfied do you usually get with the information you obtain?"*, it is possible to verify a median of 7 and a mean of 7,46. These values show that there is a gap between the information that the passengers wanted to have and the one they had. According to IBM on a survey performed in 2011, travelers dedicate a large amount of time in organizing their trips: 50% of the respondents spent more than two hours and almost 20% spent five or more hours on their most recent trip, showing that even though passengers spend a considerable amount of time planning their trips they cannot be completely satisfied.

Observing the answers to the question: *"Where do you search in order to obtain such information"*, Internet websites, Recommendation of Friends and Personal Experience are the three main sources of information, however, by analyzing figure 19[1], presented in section 4.5, it is possible to verify that the importance attributed to Internet Websites is low compared to the most important sources which are Personal Experience and Recommendation of Friends. It seems clear that the passenger desires and appreciates having accurate information that will enable him to get the most of his trip, the problem is that this information must be provided by those who know the destination well and whom the passenger trusts. What occurs is that in most cases, whoever the passenger trusts (e.g. friends) do not know the destination well and whoever knows the destination well does not have the passenger trust. It should be mentioned that there are differences in the satisfaction of passengers with the information obtained depending on the source they have. Recommendations of Friends result into higher satisfaction levels compared to those do not use it ($p<0.07$, MS=-0.230)[2]. That is, passengers that use this source usually get more satisfied since they have a trustable source providing relevant information regarding their personal preferences.

Another insight that is worth to point out is that the passenger is very willing to accept the travel packages if these were suggested by the airline. The answers of the question: *"How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences?"*, analyzed on the section 4.8., indicate that with a median of 8 and mean of 7,10 this business idea is positively received by the respondents. Meanwhile, the interest that the passengers have on being well advised and on the dynamic travel packages can be undoubtedly improved. When analyzing passenger characteristics and usefulness of customized travel choices, there are differences in the perception of women compared to men's in what concerns to the acceptance of dynamic packaging ($p<0.00$, MS=-1.382)[3]. That is, female passengers present a significant difference compared to males in terms of means, being more open to accept this type of service. The challenge for airlines is to be perceived by customers as someone who has their trust and knows their destination well. If this occurs, airlines are in a privileged position to be both the adviser and the intermediary of all the acquisitions that the passenger will need in his travel journey.

Concerning the degree of reliability that the passengers attribute to airlines on potentially providing all the personalized information, free of charge, for the passenger to organize and plan his trip, it is possible to observe that this variable presents a median of 8 and mean of

[1] **Figure 19** - Relative distribution by the importance of information source
[2] **Appendix A** – Independent Samples T-Test (Recommendation of Friends Source Use)
[3] **Appendix B** – Independent Samples T-Test (Gender)

7,50. Analyzed on section 4.8., this variable shows that the passenger attribute some reliability to the information that could eventually be provided by the airline, despite the level of trust demonstrated when passengers were asked if nowadays they consider that after selling an airplane ticket, airline's main goal is for the passenger to make the most of his trip. The trust variable represents a median of 6 and a mean of 6.10, and even though the passenger does not consider that the airline's main goal is to help him get the most of his trip, the passenger somehow believes in the reliability of the information provided by the airline. In the population, differences might be observed in the trust perceptions. For example, differences were found in the perception of younger passengers (18-30) compared to older passengers (46-65; >65), in what concerns trust towards airlines ($p<0.013$, MS=-1.101; $p<0.021$, MS=-1.178)[4]. That is, younger passengers believe less that nowadays airlines' main goal is the passenger to get the most of his trip when comparing to elder passengers.

If the airline manages to transmit the message that after selling an airplane ticket, the main priority is for the passenger to get the most of his trip by being well informed about everything that can interest the passenger at the destination, surely the interest of passengers in being advised by the airline will increase. The best way to convince customers of this is to show them the advantages that the airline will have in providing the best experience possible at the destination. If this occurs, more frequently the passenger will return to travel with the airline, the more he will promote this trip to his circle of friends and with better impression will be of the airline. All of this will contribute to increasing airline's sales without additional costs.

**Which type of advice should be given to the passenger?**

There are several questions in the survey that identify the information that passengers are mostly looking for and the difficulties they have in finding it, however, in addition to these types of information sought there are many other that passengers may need, such as nightlife, museums, shows, etc. So, the advice to be provided must be personalized. To take into consideration, the type of passenger's preferences and to cover all their needs, a shortlist of the most suitable alternatives to their profile must be presented, with enough information to allow the passenger to make the right choice.

It is better to be the passenger to make the final decision of what he wants instead of imposing options to him. The goal is to help passengers as much as possible to plan their trip and to enable them to purchase or reserve everything they need at their destination. Thus, the airline will capture the receipt of commissions through external partnerships because the service to

[4] **Appendix C** – One Way ANOVA (Age)

be provided is not limited to personalized advice, but also includes the possibility for the passenger to book through the airline everything he needs to his trip. Since the cost factor is always a very important aspect, the passenger must be guaranteed that the prices offered to him are the most competitive available on the internet. The idea is for this service to be seen by the passenger as that local friend he would like to have at the destination, who will give him all the tips he needs to make the right choices, who books everything he needs and who even manages to provide him with the best prices available.

**How this service can be set up?**

To be able to provide this personalized service, airlines will have to identify what the passenger wants. The way to identify what a passenger wants is not to create a database with all the information related to the passenger and then use artificial intelligence to identify their preferences and needs, because, in one hand, it would be highly difficult and time-consuming to create that database and on the other hand, because the same person has different motivations depending on whether is travelling for leisure or business, depending on the type of company (e.g. wife, friends, etc.) with which he is making the trip, depending on the type of destination, depending on the time he has to make that trip, etc.. So, it will be better to send a link to the passenger wherein a simple and effective way he can assess what the destination has to offer. Then, the passenger can select the boxes with the types and characteristics of the service that he would like to book, and will also have the possibility to write “observations” of any service that is not in the pre-selected options or any additional clarification he wants to obtain. In few minutes the passenger can give a very clear idea of what he intends on his trip and as mentioned before in the survey made by IBM (2011), this process does not represent practically time spent compared to the hours that the passenger normally spends searching on the internet.

To be able to select the options to be proposed for the passenger, airlines should make a pre-selection of what exists at the destination, with a good description of the pre-selected alternatives. This pre-selection must be made by a team of specialists who know the destination well. Subsequently, there must be a team that matches what the passenger wants and what the destination has to offer, selecting for the effect 2 or 3 alternatives that for each order seem the most appropriate. After receiving this shortlist, what should occur within the next 24 hours, is that the passenger can ask for additional clarifications, or can immediately select the options wanted and through a single credit card payment book all products and services for the destination.

To ensure that the system operates efficiently and with reduced costs, a platform must be created enabling to contain the necessary information regarding the pre-selected products and services and that automates all communications between the various actors including suppliers in manual-automatic method. In this way, everything that is personalized advice is manual and everything that is communication is automatic, which allows a great response capacity and with greater demand, the better it will work. As presented in the Literature Review, according to figure 6 "*Air Retailing Industry Tomorrow*", with the implementation of the NDC this communication between the airline and passengers will be more effective, reinforcing even more this business idea of personalized advice and dynamic packaging.

In order to improve the quality of the service provided, reviews made by customers who have used the proposed services should be made available so that passengers can have an opinion in addition to the one given by the airline.

As mentioned at the beginning, the author of this thesis collaborated on a project that aimed to advise tourists, providing them with information similar to the one mentioned above. If the airline does not want to set up this service due to the complexity it presents, it can make an agreement with LTAW, *The Leading Travel Agencies of the World, Lda*., which conceived and created the business model and platform mentioned above. Through this contract, the airline can provide the service under his name or on behalf of The Trip I Want[5] and receive a commission on all purchases made by passengers. Additionality, the airline can eventually agree on an intermediate form of collaboration rather than a full collaboration.

To give an overview of how this project started, LTAW launched this service for the destination Madeira in partnership with Pestana Hotels and then with TAP. Currently, this service is not operational due to the low adherence it had, making the partnership not feasible for LTAW, Pestana Hotels and TAP. It is important to understand if the low adherence was a consequence of the service not being perceived interesting by passengers or if other factors were the cause of the low adherence of the project. These were one of the objects in study for this thesis and it has already been shown that the problem is not being not perceived interesting by passengers so far.

To reinforce that the reason for the poor adherence of this project was not the lack of interest by the passenger, in addition to the evidence that has already been presented throughout this thesis, according to information collected from LTAW, all customers who responded to the survey of satisfaction that was sent after the trip[6], on a scale of 1 to 10, rated the services

[5] Designation used by LTAW
[6] Of the passengers who booked products and services through LTAW, 30% responded to the satisfaction survey.

provided with a score of 10, which shows that the problem was not the quality of the services but the small number of requests that were made.

According to LTAW, the small number of orders was a consequence of the low credibility that this service had with potential customers. As it is a new service that was promoted in a poor credible way, clients were unable to engage with this innovative idea. LTAW was unable to convince its partners to promote the service in the way it considered correct, which consequently resulted in poor communication to passengers, resulting in slight credibility of the service[7].

If the airline desires to use this offer as a tool to increase the percentage of passengers who visit their website and to purchase their ticket there, it should be noted that it is only offered to those who buy the ticket through its website, if the airline prefers not to run the risk of complicating the booking process, later communicates this added advantage which is given to its passengers. Nowadays it is very simple for the airline to test what additional advantage each of these alternatives has.

LTAW also conducted an appreciation survey among passengers who received the advice but did not purchase any service and 60% of respondents, on a scale of 1 to 5, rated 5 for the utility of the advice received. According to Steve Person, sales leader at IBM, *"the future of distribution will be defined by the success of the travel ecosystem in meeting unique customer needs"*, reinforcing that this revenue stream in developing personalized advice and dynamic packaging has a significant potential.

### 5.2. Business Implication II – Increase Sales on Direct Channels

In this section, it is intended to find some strategy approaches that would lead airlines to increase sales and conversions in the direct channels and thus have the possibility to sale even more additional services to passengers and to save excessive distribution costs that threaten their competitiveness.

As mentioned before in the Literature Review, one of the biggest challenges faced by airlines nowadays is the management of the distribution of airline tickets. Today, a considerable percentage of sales by airlines comes from the indirect channel, that is, travel agents such as OTAs[8] and physical travel agents. The main challenge is related to online travel agents that represent a large percentage of sales and consequently also represents a significant distribution cost that airlines strive to avoid.

[7] According to LTAW, 3 different forms of communication were used during the life of the project, none of them considered correct, being the receptivity obtained in Grupo Pestana 100 times more than the one used in TAP.
[8] Online Travel Agents

In the subchapter 4.3. - *Analysis of the purchase process of tickets in TAP* - it was possible to observe that 45,4% of the respondents of the survey acquired their tickets directly in TAP's website. A percentage that corresponds to the reality of TAP since it nearly matches the 44% of total sales via the direct channel. The second larger category is exactly OTAs that in this sample represents 36,1%.

To understand if passengers are aware of flytap.pt it was asked to the passengers that do not usually buy the ticket in the airline's website if they went to the TAP's website before purchase the airplane ticket. The answers were nearly distributed with 48,3% of the respondents saying that they did go to the website but afterwards they did not buy there, and the remaining 51,7% answering that they did not even visit the airline's website before purchasing the ticket. This means that approximately half the people that do not usually buy the ticket directly throw the company do not even visit the airline's website.

The two main reasons for passengers not visiting the website of the airline or for visiting the website but not to buy the airplane ticket there is the lack of fares comparison accounting for 25,7% of the answers and for not having a competitive price, accounting for 23,5%.

Regarding fares comparison, this concerns the business of metasearch operators that have the aim to compare fares of different airlines and then to sell additional services to passengers. Even if the airline displayed the competitors prices, it would be difficult for the passenger to accept them as valid, so it is better for the airline to transmit the message to the passenger that after choosing a flight the ideal place to acquire the ticket is directly on the airline's website.

The second reason that leads passengers to do not acquire the airplane ticket directly with the airline, according to the survey, is not having a competitive price. In most times, airlines provide the lowest price for all travel agents but what happens is that OTAs undercut the price, that is, intentionally lose money in the sale of the airplane ticket in order to attract customers and then profit from the sale of additional services directly in their website such as accommodation, rent a car, tourist attractions, etc. If airlines manage to provide the best price available in the market regardless the undercut made by OTAs, airlines themselves could beneficiate from the selling of other products and services by attracting customers to their websites.

In order to retain customers in their websites, airlines should guarantee the best final price of every flight and if the passenger finds a cheaper price somewhere, airlines should compensate the difference occurred. It can be tricky for airlines to fight against undercutting of some travel agents but airlines should either match the price offered (if needed, that is, if the passenger complains) and airlines should also negotiate contracts with OTAs to secure that no

undercutting is taken and thus the price that OTAs are practising could never be more competitive than the one provided directly by the airline in their platforms (i.e. airline's website).

Airlines should focus on providing value-added and innovative products/services that would only be available on the airline's website. If these new products and services (e.g. dynamic packaging, convenient ancillaries, etc.) translate into increased satisfaction of the passengers, consequently they will want to repeat or try new trips with the airline company increasing the airline's direct sales.

### 5.3. Business Implications III - Airplane Ticket Resell

One of the goals of airlines is to maximize the revenue of the tickets sold on every route. Taking into consideration that a seat for any flight cannot be sold after the flight is realized, it is natural that the airline makes all the efforts to sell the ticket fare before the flight takes off and for the best price possible. The marginal cost for transporting an additional passenger is almost zero in this business meaning that the retail of a fare for the right price may translate in the direct profit. Therefore, airlines strive to fill the seats available in the airplane with the passengers that are available to pay more, the problem is that in practice is impossible to do so.

The method of TAP and other airlines relies on having several Reservation Booking Designators (RBDs) that are levels of classes of inventory (between 20 to 30 RBDs) for the same type of seat in the same flight depending exclusively on demand and rarely on competitors' promotions. This strategy enables airlines to have a high rate of occupation in their flights since it starts with lower fares and as the occupation of the flight increases a RBD is closed and it is opened a new RBD that now has a higher fare. In practice depending on the flight each RBD opens when a percentage of the capacity of seats is reached, that is, when for example the flight is 5% full the first RBD closes and the next one is opened. The practical consequence of this strategy is that in the same flight and for similar seats the price sold can vary in ratio from 1 to 5 and most of the times the airline stops selling a seat for 5 because already sold a seat for 1 when the first RBDs were opened (Marques, 2020).

To understand the potential that a resale of an airplane ticket can impact airline companies it was asked to the respondents as presented in section 4.11. if they would buy an airplane ticket where the airline could change the flight to the previous day or the day after as long if the passenger was refunded. As already pointed out previously in section 4.11. the acceptance of changing the airline ticket by the passengers is at least 20%, which represents a positive value to perform this business idea. Also, there are differences in the perception of business and leisure passengers in what concerns to the acceptance of changing the airline ticket as long

as they are refunded ($p<0.01$, $MS=0.418$)[9]. Leisure passengers present a higher flexibility to change their airline ticket compared to Business since they do not need to travel on specific dates and can adjust the date of departure in order to benefit from such a change.

The possibility of changing the ticket, besides of being advantageous for the passenger it can be a great way for the airline to increase revenues. Concerning the passenger side, this business idea can be extremely useful mainly for passengers that do not have to fly on specific dates (e.g. students that are going to visit a friend abroad or business passengers that are going to a meeting abroad) and it makes no difference to them by flying a day before or a day after as long as they are refunded, that is, they will fly for free.

Regarding the airline, this opportunity will permit to maximize revenues in each flight because it will permit the passengers willing to pay more to fly in a supposedly full flight, and it will permit the passengers that are willing to pay less and to change the flight to fly in a flight that is not full.

To better understand this idea, suppose that a passenger (A) acquired a ticket in advance for 100€ (one of the lowest RBDs) under the possibility of change it with a refund. Then, the airline sells the remain tickets for that flight until its full where the last tickets were sold on the last RBD, that is, 4 times more than the firsts. If the additional passenger (B) is willing to pay at least 400€ (100€*4) for the overbooked flight, the airline can change the ticket with the passenger (A) and have an additional revenue of 300€ (400€-100€). The passenger (A) will then fly in the day before or after to the same destination in a flight with less demand. This hypothetic scenario is the best-case scenario where the airline could change the fare of the passenger that paid less. In some situations, airlines may have to change fares of passengers that are in a slightly higher RBD and eventually reach to a point that is not worth it to resell the airplane ticket.

As mentioned before the marginal cost of taking an additional passenger in a flight that is not full is almost zero, so here it's the opportunity for airlines to maximize the revenue in every flight. Remember that the passenger (A), in this example, agreed previously to be subject of such changing and the airline only activate this change if intends to do so regarding the occupation of similar flights on the near dates.

The interest of this new revenue management instrument will be certainly different from airline to airline, depending on its reality, it can simulate without major difficulties the impact that this business idea has on the variation of its revenues. The idea is to have a software that allows,

[9] **Appendix D** – Independent Samples T-Test (Purpose of Travel)

when there are no more seats available, to automatically release seats that have accepted this condition as long as it is possible to exchange under the agreed terms and when the revenue for the airline is higher than it would be if such modification of seats did not occur.

CHAPTER 6

# Conclusions

It remained clear that there are still many opportunities to be explored by airlines regarding innovation of services and products in a world that is becoming increasingly more global and digital. More and more, in the context we live, airline companies need to increase their sources of revenue to face the fierce competition present in the industry. With high operating costs and because of this competition that lead prices to remain near to cost prices, airlines that do not invest in additional revenue streams will find it difficult to become sustainable and survive.

It was evident during this thesis that airlines benefit from a unique position in the passenger journey. Airlines are intermediaries for practically everyone who travels by airplane and should take advantage of their position by improving the offer of services and products provided to customers while at the same time capturing more revenue. By selling more diversified products and services to passengers, airlines will increase their value proposition, passenger's satisfaction, the company's reputation and consequently will also increase the company's market share.

Every passenger who travels, regardless of his motivation, knows that the better the information about the destination, the better the gain will get from the trip. Therefore, passengers spend a lot of time preparing the trip, as demonstrated in a study disclosed by IBM (2011). The survey that was conducted in this thesis accounting for 300 passengers who usually travel by airplane and that have different profiles, frequency of travel and motivations, showed that passengers have difficulty in organizing accurately their trips. The collected data indicated that what assists passengers organizing their trips is acquaints living at the destination that could assist with everything needed by the passenger. In the absence of this local friend, the passenger looks for several alternatives, but all have them with their flaws as shown in section 4.5.

Everyone who travels by airplane needs to acquire an airplane ticket and which better place to buy it than directly at the supplier? Airlines are better positioned to be the seller than any other intermediary, especially if ensuring the lowest selling price. It was also concluded that after selling an airplane ticket, airline's main goal must be for the passenger to get the most of his trip. This way, the passenger will promote the airline in his circle of friends (peer influence), the sooner he will repeat it, with a better image of the airline he will be, and all of this will translate consequently into more business for the airline. All factors that will contribute to

increasing the airline´s competitiveness and profitability. To enable the passenger to get the most of his trip, the airline has to ensure that it offers personalized advice and subsequently a dynamic package to the passenger, maximizing the fulfilment of his trip by simultaneously selling at the best available price on the internet everything he needs to make his trip. Thus, airlines will significantly increase revenues by receiving commissions from external partnerships and at the same time guarantee to the passenger to be that friend the passenger would like to have at the destination and does not have.

Given the reliability that the passenger already has with the information provided by the airline (according to the responses of the survey with a median of 8 and a mean of 7,51, on a scale of 1 to 10), trust will be bounded after the passenger experiences that his motivation to get the most of his trip is shared similarly by the airline. Airlines are in a position not only to provide the advice that the passenger needs but also to deliver full support in the reservation of products/services that the passenger requests. From here, the airline's website becomes unbeatable since these advantages are only guaranteed to those who acquire the ticket directly with the airline. For the personalized advice and dynamic packages to be perfect the airline must consider the type of preferences, cover all passenger needs and present a short-list of the most appropriate alternatives to give enough information to allow the passenger to make the right choice. In section 5.2. is detailed how this service can be operated. Hence, the conditions are created in order to increase the intermediation made by airlines, in one hand by cultivating the trust that the passenger has in the airline and on the other hand the possibility for the company to increase the number of products and services to be made available, given the increase in demand it will have. Once the passenger creates the image that the airline’s website is the indicated place for acquire the airline ticket and to organize his trip, the airline will consequently increase the percentage of passengers who buy tickets directly on their website with the double advantage of reducing distribution costs of tickets sold and growing the commissions received. In the case of TAP, this potential growth is significant since half of the passengers do not buy the ticket on the website although they have visited the website.

Another aspect analysed in the thesis was the reselling of airline tickets and it was concluded that is an opportunity with great potential to be explored by airlines that aims to maximize the revenue obtained on each flight. The marginal cost of carrying a passenger on a flight that will not have enough demand to be fully combined with the ticket fare variation practised by airlines on each flight makes this opportunity a reality. Airlines usually adopt an inventory strategy that progressively increases the ticket fare according to demand, that is, the closer the date of the flight departure the highest will be the ticket fare for the same type of seat. Thus, reselling the airplane ticket may allow airlines to exchange the seat of a passenger who paid a low fare on a specific flight that turned out to be full, and place him on a flight that will not be full on a date

close to his initial flight under the conditions that were previously agreed either by the passenger and the airline. The airline benefits from the advantage of being able to trigger this exchange when it considers appropriate in terms of additional revenue since the passenger, having accepted such conditions, was subject to his flight change under the option of being refunded. For the passenger who does not need to fly on a certain day and can fly the day before or after, the advantages are evident since the passenger will fly for free, for the airline it is also advantageous because the marginal cost tends to zero on flights that are not full.

In sum, all these topics developed throughout the thesis aimed to increase airline revenues and to enrich the value proposition offered to passengers. In an increasingly global and digital world, airlines must keep the pace with evolution and innovation, moving from being just carriers of people to becoming more retailers of everything that the passengers need on their trips. This will be the path to follow with airlines opening their ecosystem to partners outside the aviation industry by taking advantage of their unique position in the traveller's journey.

**Limitations and Future Work**

The findings of this study need to be seen in light of some limitations. It should be noted that access to data from TAP Air Portugal was difficult to obtain. The pandemic had a strong impact on the airline, many of its employees were subject to reduced working hours, which made the contact with employees difficult. This research work also has some issues with sample and selection since conducting a survey to obtain the research results limited the answers of the participants that had to respond to the questions designed.

To overcome these limitations, some in-depth data collection and analyses should be performed. The option chosen of collecting data was the one possible at that time because of the pandemic. This method permitted to collect data in a safe way and was efficient since it was relatively quick to obtain the data. Concerning further considerations, may the researcher consider complementing this study with some qualitative data that would focus on the designated significant aspects of the current analysis.

Also, the challenge for airlines in being perceived by customers as someone they trust and knows their destination well may be a future work deserving a more exhaustive analysis in order to explore the best approaches to be taken by the airlines to overcome this trust issue.

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# Appendix

## **Appendix A –** Independent Samples T-Test (Recommendation of Friends Source Use)

**Estatísticas de grupo**

| | Recommendation of Friends/Relatives or Colleagues | N | Média | Erro Desvio | Erro padrão da média |
|---|---|---|---|---|---|
| How satisfied do you usually get with the information you obtain? | No | 116 | 7,32 | 1,169 | ,109 |
| | Yes | 184 | 7,55 | 1,018 | ,075 |
| How important it would be for you to be wisely advised when planning your trip? | No | 116 | 7,92 | 1,952 | ,181 |
| | Yes | 184 | 8,28 | 1,661 | ,122 |
| How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? | No | 116 | 7,52 | 2,132 | ,198 |
| | Yes | 184 | 7,51 | 2,091 | ,154 |
| How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? | No | 116 | 6,80 | 2,541 | ,236 |
| | Yes | 184 | 7,21 | 2,315 | ,171 |
| Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? | No | 116 | 6,21 | 2,451 | ,228 |
| | Yes | 184 | 6,03 | 2,474 | ,182 |
| Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? | No | 116 | 2,49 | 1,261 | ,117 |
| | Yes | 184 | 2,53 | 1,182 | ,087 |

**Teste de amostras independentes**

| | | Teste de Levene para igualdade de variâncias | | teste-t para Igualdade de Médias | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Intervalo de Confiança da Diferença | |
| | | Z | Sig. | t | df | Sig. (2 extremidades) | Diferença média | Erro padrão de diferença | Inferior | Superior |
| How satisfied do you usually get with the information you obtain? | Variâncias iguais assumidas | 2,409 | ,122 | -1,798 | 298 | ,073 | -,230 | ,128 | -,482 | ,022 |
| | Variâncias iguais não assumidas | | | -1,743 | 219,626 | ,083 | -,230 | ,132 | -,490 | ,030 |
| How important it would be for you to be wisely advised when planning your trip? | Variâncias iguais assumidas | ,609 | ,436 | -1,682 | 298 | ,094 | -,355 | ,211 | -,770 | ,060 |
| | Variâncias iguais não assumidas | | | -1,622 | 215,681 | ,106 | -,355 | ,219 | -,786 | ,076 |
| How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? | Variâncias iguais assumidas | ,238 | ,626 | ,026 | 298 | ,980 | ,006 | ,250 | -,485 | ,498 |
| | Variâncias iguais não assumidas | | | ,025 | 241,000 | ,980 | ,006 | ,251 | -,488 | ,501 |
| How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? | Variâncias iguais assumidas | ,986 | ,322 | -1,439 | 298 | ,151 | -,410 | ,285 | -,971 | ,151 |
| | Variâncias iguais não assumidas | | | -1,409 | 227,677 | ,160 | -,410 | ,291 | -,984 | ,164 |
| Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? | Variâncias iguais assumidas | ,017 | ,896 | ,596 | 298 | ,551 | ,174 | ,292 | -,401 | ,749 |
| | Variâncias iguais não assumidas | | | ,598 | 246,271 | ,551 | ,174 | ,292 | -,400 | ,749 |
| Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? | Variâncias iguais assumidas | 1,148 | ,285 | -,249 | 298 | ,804 | -,036 | ,144 | -,319 | ,247 |
| | Variâncias iguais não assumidas | | | -,245 | 232,803 | ,807 | -,036 | ,146 | -,323 | ,252 |

# **Appendix B –** Independent Samples T-Test (Gender)

**Estatísticas de grupo**

| | Gender | N | Média | Erro Desvio | Erro padrão da média |
|---|---|---|---|---|---|
| How satisfied do you usually get with the information you obtain? | Male | 164 | 7,34 | 1,148 | ,090 |
| | Female | 136 | 7,60 | ,983 | ,084 |
| How important it would be for you to be wisely advised when planning your trip? | Male | 164 | 7,75 | 1,989 | ,155 |
| | Female | 136 | 8,61 | 1,367 | ,117 |
| How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? | Male | 164 | 7,03 | 2,295 | ,179 |
| | Female | 136 | 8,10 | 1,677 | ,144 |
| How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? | Male | 164 | 6,43 | 2,593 | ,202 |
| | Female | 136 | 7,81 | 1,919 | ,165 |
| Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? | Male | 164 | 5,82 | 2,675 | ,209 |
| | Female | 136 | 6,44 | 2,139 | ,183 |
| Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? | Male | 164 | 2,47 | 1,299 | ,101 |
| | Female | 136 | 2,57 | 1,100 | ,094 |

**Teste de amostras independentes**

| | | Teste de Levene para igualdade de variâncias | | teste-t para Igualdade de Médias | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Intervalo de Confiança da Diferença | |
| | | Z | Sig. | t | df | Sig. (2 extremidades) | Diferença média | Erro padrão de diferença | Inferior | Superior |
| How satisfied do you usually get with the information you obtain? | Variâncias iguais assumidas | 1,684 | ,195 | -2,094 | 298 | ,037 | -,261 | ,125 | -,507 | -,016 |
| | Variâncias iguais não assumidas | | | -2,124 | 297,678 | ,034 | -,261 | ,123 | -,504 | -,019 |
| How important it would be for you to be wisely advised when planning your trip? | Variâncias iguais assumidas | 6,670 | ,010 | -4,275 | 298 | ,000 | -,860 | ,201 | -1,256 | -,464 |
| | Variâncias iguais não assumidas | | | -4,421 | 288,563 | ,000 | -,860 | ,195 | -1,243 | -,477 |
| How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? | Variâncias iguais assumidas | 14,453 | ,000 | -4,505 | 298 | ,000 | -1,065 | ,236 | -1,530 | -,600 |
| | Variâncias iguais não assumidas | | | -4,635 | 293,539 | ,000 | -1,065 | ,230 | -1,517 | -,613 |
| How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? | Variâncias iguais assumidas | 16,509 | ,000 | -5,154 | 298 | ,000 | -1,382 | ,268 | -1,910 | -,854 |
| | Variâncias iguais não assumidas | | | -5,297 | 294,360 | ,000 | -1,382 | ,261 | -1,895 | -,869 |
| Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? | Variâncias iguais assumidas | 11,104 | ,001 | -2,199 | 298 | ,029 | -,624 | ,284 | -1,183 | -,066 |
| | Variâncias iguais não assumidas | | | -2,245 | 297,622 | ,025 | -,624 | ,278 | -1,171 | -,077 |
| Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? | Variâncias iguais assumidas | 9,381 | ,002 | -,687 | 298 | ,492 | -,097 | ,141 | -,373 | ,180 |
| | Variâncias iguais não assumidas | | | -,698 | 297,855 | ,486 | -,097 | ,138 | -,369 | ,176 |

# **Appendix C –** One Way ANOVA (Age)

**Descritivas**

| | | N | Média | Desvio padrão | Erro Padrão | 95% de Intervalo de Confiança para Média | | Mínimo | Máximo |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Limite inferior | Limite superior | | |
| How satisfied do you usually get with the information you obtain? | 18-30 | 86 | 7,62 | 1,150 | ,124 | 7,37 | 7,86 | 4 | 10 |
| | 31-45 | 59 | 7,54 | 1,164 | ,152 | 7,24 | 7,85 | 5 | 10 |
| | 46-65 | 94 | 7,32 | ,930 | ,096 | 7,13 | 7,51 | 5 | 9 |
| | >65 | 61 | 7,38 | 1,113 | ,143 | 7,09 | 7,66 | 5 | 10 |
| | Total | 300 | 7,46 | 1,083 | ,063 | 7,34 | 7,58 | 4 | 10 |
| How important it would be for you to be wisely advised when planning your trip? | 18-30 | 86 | 8,08 | 1,723 | ,186 | 7,71 | 8,45 | 3 | 10 |
| | 31-45 | 59 | 8,47 | 1,823 | ,237 | 8,00 | 8,95 | 1 | 10 |
| | 46-65 | 94 | 8,17 | 1,486 | ,153 | 7,87 | 8,47 | 5 | 10 |
| | >65 | 61 | 7,85 | 2,197 | ,281 | 7,29 | 8,42 | 1 | 10 |
| | Total | 300 | 8,14 | 1,784 | ,103 | 7,94 | 8,34 | 1 | 10 |
| How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? | 18-30 | 86 | 7,41 | 2,262 | ,244 | 6,92 | 7,89 | 1 | 10 |
| | 31-45 | 59 | 7,36 | 2,332 | ,304 | 6,75 | 7,96 | 1 | 10 |
| | 46-65 | 94 | 7,99 | 1,583 | ,163 | 7,67 | 8,31 | 3 | 10 |
| | >65 | 61 | 7,08 | 2,253 | ,288 | 6,50 | 7,66 | 1 | 10 |
| | Total | 300 | 7,51 | 2,103 | ,121 | 7,27 | 7,75 | 1 | 10 |
| How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? | 18-30 | 86 | 7,03 | 2,461 | ,265 | 6,51 | 7,56 | 1 | 10 |
| | 31-45 | 59 | 7,31 | 2,191 | ,285 | 6,73 | 7,88 | 1 | 10 |
| | 46-65 | 94 | 7,30 | 2,213 | ,228 | 6,84 | 7,75 | 1 | 10 |
| | >65 | 61 | 6,46 | 2,754 | ,353 | 5,75 | 7,16 | 1 | 10 |
| | Total | 300 | 7,05 | 2,409 | ,139 | 6,78 | 7,33 | 1 | 10 |
| Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? | 18-30 | 86 | 5,31 | 2,475 | ,267 | 4,78 | 5,84 | 1 | 10 |
| | 31-45 | 59 | 6,34 | 2,496 | ,325 | 5,69 | 6,99 | 1 | 10 |
| | 46-65 | 94 | 6,41 | 2,097 | ,216 | 5,99 | 6,84 | 2 | 10 |
| | >65 | 61 | 6,49 | 2,730 | ,350 | 5,79 | 7,19 | 1 | 10 |
| | Total | 300 | 6,10 | 2,462 | ,142 | 5,82 | 6,38 | 1 | 10 |
| Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? | 18-30 | 86 | 2,78 | 1,323 | ,143 | 2,50 | 3,06 | 1 | 5 |
| | 31-45 | 59 | 2,59 | 1,085 | ,141 | 2,31 | 2,88 | 1 | 5 |
| | 46-65 | 94 | 2,36 | 1,144 | ,118 | 2,13 | 2,60 | 1 | 5 |
| | >65 | 61 | 2,30 | 1,216 | ,156 | 1,98 | 2,61 | 1 | 5 |
| | Total | 300 | 2,51 | 1,212 | ,070 | 2,38 | 2,65 | 1 | 5 |

**Testes de homogeneidade de variâncias**

| | | Estatística de Levene | df1 | df2 | Sig. |
|---|---|---|---|---|---|
| How satisfied do you usually get with the information you obtain? | Com base em média | 1,284 | 3 | 296 | ,280 |
| | Com base em mediana | ,352 | 3 | 296 | ,788 |
| | Com base em mediana e com gl ajustado | ,352 | 3 | 271,735 | ,788 |
| | Com base em média aparada | 1,199 | 3 | 296 | ,310 |
| How important it would be for you to be wisely advised when planning your trip? | Com base em média | 1,030 | 3 | 296 | ,379 |
| | Com base em mediana | 1,085 | 3 | 296 | ,356 |
| | Com base em mediana e com gl ajustado | 1,085 | 3 | 240,095 | ,356 |
| | Com base em média aparada | ,888 | 3 | 296 | ,448 |
| How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? | Com base em média | 5,284 | 3 | 296 | ,001 |
| | Com base em mediana | 3,451 | 3 | 296 | ,017 |
| | Com base em mediana e com gl ajustado | 3,451 | 3 | 263,513 | ,017 |
| | Com base em média aparada | 4,485 | 3 | 296 | ,004 |
| How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? | Com base em média | 2,312 | 3 | 296 | ,076 |
| | Com base em mediana | 1,549 | 3 | 296 | ,202 |
| | Com base em mediana e com gl ajustado | 1,549 | 3 | 289,471 | ,202 |
| | Com base em média aparada | 2,225 | 3 | 296 | ,085 |
| Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? | Com base em média | 2,070 | 3 | 296 | ,104 |
| | Com base em mediana | 1,632 | 3 | 296 | ,182 |
| | Com base em mediana e com gl ajustado | 1,632 | 3 | 284,178 | ,182 |
| | Com base em média aparada | 1,997 | 3 | 296 | ,115 |
| Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? | Com base em média | 2,006 | 3 | 296 | ,113 |
| | Com base em mediana | 1,662 | 3 | 296 | ,175 |
| | Com base em mediana e com gl ajustado | 1,662 | 3 | 295,344 | ,175 |
| | Com base em média aparada | 2,002 | 3 | 296 | ,114 |

**ANOVA**

| | | Soma dos Quadrados | df | Quadrado Médio | Z | Sig. |
|---|---|---|---|---|---|---|
| How satisfied do you usually get with the information you obtain? | Entre Grupos | 4,785 | 3 | 1,595 | 1,366 | ,253 |
| | Nos grupos | 345,735 | 296 | 1,168 | | |
| | Total | 350,520 | 299 | | | |
| How important it would be for you to be wisely advised when planning your trip? | Entre Grupos | 12,029 | 3 | 4,010 | 1,263 | ,287 |
| | Nos grupos | 940,091 | 296 | 3,176 | | |
| | Total | 952,120 | 299 | | | |
| How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? | Entre Grupos | 35,086 | 3 | 11,695 | 2,688 | ,047 |
| | Nos grupos | 1287,861 | 296 | 4,351 | | |
| | Total | 1322,947 | 299 | | | |
| How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? | Entre Grupos | 30,936 | 3 | 10,312 | 1,791 | ,149 |
| | Nos grupos | 1704,211 | 296 | 5,757 | | |
| | Total | 1735,147 | 299 | | | |
| Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? | Entre Grupos | 75,191 | 3 | 25,064 | 4,269 | ,006 |
| | Nos grupos | 1737,809 | 296 | 5,871 | | |
| | Total | 1813,000 | 299 | | | |
| Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? | Entre Grupos | 11,516 | 3 | 3,839 | 2,658 | ,048 |
| | Nos grupos | 427,430 | 296 | 1,444 | | |
| | Total | 438,947 | 299 | | | |

**Testes Robustos de Igualdade de Médias**

| | | Estatística[a] | df1 | df2 | Sig. |
|---|---|---|---|---|---|
| How satisfied do you usually get with the information you obtain? | Welch | 1,407 | 3 | 148,632 | ,243 |
| | Brown-Forsythe | 1,325 | 3 | 256,232 | ,267 |
| How important it would be for you to be wisely advised when planning your trip? | Welch | 1,036 | 3 | 146,097 | ,379 |
| | Brown-Forsythe | 1,185 | 3 | 230,509 | ,316 |
| How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? | Welch | 3,337 | 3 | 144,269 | ,021 |
| | Brown-Forsythe | 2,546 | 3 | 240,382 | ,057 |
| How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? | Welch | 1,530 | 3 | 150,988 | ,209 |
| | Brown-Forsythe | 1,759 | 3 | 256,314 | ,155 |
| Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? | Welch | 4,152 | 3 | 148,110 | ,007 |
| | Brown-Forsythe | 4,102 | 3 | 250,359 | ,007 |
| Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? | Welch | 2,435 | 3 | 153,660 | ,067 |
| | Brown-Forsythe | 2,697 | 3 | 278,198 | ,046 |

a. F distribuído assintoticamente.

**Comparações múltiplas**

| Variável dependente | | (I) Age | (J) Age | Diferença média (I-J) | Erro Padrão | Sig. | Intervalo de Confiança 95% | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Limite inferior | Limite superior |
| How satisfied do you usually get with the information you obtain? | Tukey HSD | 18-30 | 31-45 | ,074 | ,183 | ,978 | -,40 | ,55 |
| | | | 46-65 | ,297 | ,161 | ,256 | -,12 | ,71 |
| | | | >65 | ,239 | ,181 | ,549 | -,23 | ,71 |
| | | 31-45 | 18-30 | -,074 | ,183 | ,978 | -,55 | ,40 |
| | | | 46-65 | ,223 | ,180 | ,600 | -,24 | ,69 |
| | | | >65 | ,165 | ,197 | ,836 | -,34 | ,68 |
| | | 46-65 | 18-30 | -,297 | ,161 | ,256 | -,71 | ,12 |
| | | | 31-45 | -,223 | ,180 | ,600 | -,69 | ,24 |
| | | | >65 | -,058 | ,178 | ,988 | -,52 | ,40 |
| | | >65 | 18-30 | -,239 | ,181 | ,549 | -,71 | ,23 |
| | | | 31-45 | -,165 | ,197 | ,836 | -,68 | ,34 |
| | | | 46-65 | ,058 | ,178 | ,988 | -,40 | ,52 |
| | Dunnett C | 18-30 | 31-45 | ,074 | ,196 | | -,44 | ,59 |
| | | | 46-65 | ,297 | ,157 | | -,11 | ,71 |
| | | | >65 | ,239 | ,189 | | -,26 | ,74 |
| | | 31-45 | 18-30 | -,074 | ,196 | | -,59 | ,44 |
| | | | 46-65 | ,223 | ,179 | | -,25 | ,70 |
| | | | >65 | ,165 | ,208 | | -,38 | ,72 |
| | | 46-65 | 18-30 | -,297 | ,157 | | -,71 | ,11 |
| | | | 31-45 | -,223 | ,179 | | -,70 | ,25 |
| | | | >65 | -,058 | ,172 | | -,51 | ,39 |
| | | >65 | 18-30 | -,239 | ,189 | | -,74 | ,26 |
| | | | 31-45 | -,165 | ,208 | | -,72 | ,38 |
| | | | 46-65 | ,058 | ,172 | | -,39 | ,51 |
| How important it would be for you to be wisely advised when planning your trip? | Tukey HSD | 18-30 | 31-45 | -,393 | ,301 | ,560 | -1,17 | ,39 |
| | | | 46-65 | -,089 | ,266 | ,987 | -,78 | ,60 |
| | | | >65 | ,229 | ,298 | ,869 | -,54 | 1,00 |
| | | 31-45 | 18-30 | ,393 | ,301 | ,560 | -,39 | 1,17 |
| | | | 46-65 | ,304 | ,296 | ,733 | -,46 | 1,07 |
| | | | >65 | ,622 | ,325 | ,225 | -,22 | 1,46 |
| | | 46-65 | 18-30 | ,089 | ,266 | ,987 | -,60 | ,78 |
| | | | 31-45 | -,304 | ,296 | ,733 | -1,07 | ,46 |
| | | | >65 | ,318 | ,293 | ,699 | -,44 | 1,07 |
| | | >65 | 18-30 | -,229 | ,298 | ,869 | -1,00 | ,54 |
| | | | 31-45 | -,622 | ,325 | ,225 | -1,46 | ,22 |
| | | | 46-65 | -,318 | ,293 | ,699 | -1,07 | ,44 |
| | Dunnett C | 18-30 | 31-45 | -,393 | ,301 | | -1,19 | ,40 |
| | | | 46-65 | -,089 | ,241 | | -,72 | ,54 |
| | | | >65 | ,229 | ,337 | | -,66 | 1,12 |
| | | 31-45 | 18-30 | ,393 | ,301 | | -,40 | 1,19 |
| | | | 46-65 | ,304 | ,282 | | -,44 | 1,05 |
| | | | >65 | ,622 | ,368 | | -,35 | 1,60 |
| | | 46-65 | 18-30 | ,089 | ,241 | | -,54 | ,72 |
| | | | 31-45 | -,304 | ,282 | | -1,05 | ,44 |
| | | | >65 | ,318 | ,320 | | -,53 | 1,16 |
| | | >65 | 18-30 | -,229 | ,337 | | -1,12 | ,66 |
| | | | 31-45 | -,622 | ,368 | | -1,60 | ,35 |
| | | | 46-65 | -,318 | ,320 | | -1,16 | ,53 |
| How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? | Tukey HSD | 18-30 | 31-45 | ,051 | ,353 | ,999 | -,86 | ,96 |
| | | | 46-65 | -,582 | ,311 | ,243 | -1,39 | ,22 |
| | | | >65 | ,325 | ,349 | ,788 | -,58 | 1,23 |
| | | 31-45 | 18-30 | -,051 | ,353 | ,999 | -,96 | ,86 |
| | | | 46-65 | -,633 | ,346 | ,262 | -1,53 | ,26 |
| | | | >65 | ,274 | ,381 | ,889 | -,71 | 1,26 |
| | | 46-65 | 18-30 | ,582 | ,311 | ,243 | -,22 | 1,39 |
| | | | 31-45 | ,633 | ,346 | ,262 | -,26 | 1,53 |
| | | | >65 | ,907* | ,343 | ,042 | ,02 | 1,79 |
| | | >65 | 18-30 | -,325 | ,349 | ,788 | -1,23 | ,58 |
| | | | 31-45 | -,274 | ,381 | ,889 | -1,26 | ,71 |
| | | | 46-65 | -,907* | ,343 | ,042 | -1,79 | -,02 |
| | Dunnett C | 18-30 | 31-45 | ,051 | ,389 | | -,98 | 1,08 |
| | | | 46-65 | -,582 | ,293 | | -1,35 | ,19 |
| | | | >65 | ,325 | ,378 | | -,67 | 1,32 |
| | | 31-45 | 18-30 | -,051 | ,389 | | -1,08 | ,98 |
| | | | 46-65 | -,633 | ,345 | | -1,54 | ,28 |
| | | | >65 | ,274 | ,419 | | -,83 | 1,38 |
| | | 46-65 | 18-30 | ,582 | ,293 | | -,19 | 1,35 |
| | | | 31-45 | ,633 | ,345 | | -,28 | 1,54 |
| | | | >65 | ,907* | ,331 | | ,03 | 1,78 |
| | | >65 | 18-30 | -,325 | ,378 | | -1,32 | ,67 |
| | | | 31-45 | -,274 | ,419 | | -1,38 | ,83 |
| | | | 46-65 | -,907* | ,331 | | -1,78 | -,03 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? | Tukey HSD | 18-30 | 31-45 | -,270 | ,406 | ,910 | -1,32 | ,78 |
| | | | 46-65 | -,263 | ,358 | ,883 | -1,19 | ,66 |
| | | | >65 | ,576 | ,402 | ,479 | -,46 | 1,61 |
| | | 31-45 | 18-30 | ,270 | ,406 | ,910 | -,78 | 1,32 |
| | | | 46-65 | ,007 | ,399 | 1,000 | -1,02 | 1,04 |
| | | | >65 | ,846 | ,438 | ,217 | -,29 | 1,98 |
| | | 46-65 | 18-30 | ,263 | ,358 | ,883 | -,66 | 1,19 |
| | | | 31-45 | -,007 | ,399 | 1,000 | -1,04 | 1,02 |
| | | | >65 | ,839 | ,395 | ,147 | -,18 | 1,86 |
| | | >65 | 18-30 | -,576 | ,402 | ,479 | -1,61 | ,46 |
| | | | 31-45 | -,846 | ,438 | ,217 | -1,98 | ,29 |
| | | | 46-65 | -,839 | ,395 | ,147 | -1,86 | ,18 |
| | Dunnett C | 18-30 | 31-45 | -,270 | ,390 | | -1,30 | ,76 |
| | | | 46-65 | -,263 | ,350 | | -1,18 | ,65 |
| | | | >65 | ,576 | ,441 | | -,59 | 1,74 |
| | | 31-45 | 18-30 | ,270 | ,390 | | -,76 | 1,30 |
| | | | 46-65 | ,007 | ,365 | | -,96 | ,97 |
| | | | >65 | ,846 | ,454 | | -,35 | 2,05 |
| | | 46-65 | 18-30 | ,263 | ,350 | | -,65 | 1,18 |
| | | | 31-45 | -,007 | ,365 | | -,97 | ,96 |
| | | | >65 | ,839 | ,420 | | -,27 | 1,95 |
| | | >65 | 18-30 | -,576 | ,441 | | -1,74 | ,59 |
| | | | 31-45 | -,846 | ,454 | | -2,05 | ,35 |
| | | | 46-65 | -,839 | ,420 | | -1,95 | ,27 |
| Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? | Tukey HSD | 18-30 | 31-45 | -1,025 | ,410 | ,062 | -2,08 | ,03 |
| | | | 46-65 | -1,101* | ,362 | ,013 | -2,04 | -,17 |
| | | | >65 | -1,178* | ,406 | ,021 | -2,23 | -,13 |
| | | 31-45 | 18-30 | 1,025 | ,410 | ,062 | -,03 | 2,08 |
| | | | 46-65 | -,076 | ,402 | ,998 | -1,12 | ,96 |
| | | | >65 | -,153 | ,442 | ,986 | -1,30 | ,99 |
| | | 46-65 | 18-30 | 1,101* | ,362 | ,013 | ,17 | 2,04 |
| | | | 31-45 | ,076 | ,402 | ,998 | -,96 | 1,12 |
| | | | >65 | -,077 | ,398 | ,997 | -1,11 | ,95 |
| | | >65 | 18-30 | 1,178* | ,406 | ,021 | ,13 | 2,23 |
| | | | 31-45 | ,153 | ,442 | ,986 | -,99 | 1,30 |
| | | | 46-65 | ,077 | ,398 | ,997 | -,95 | 1,11 |
| | Dunnett C | 18-30 | 31-45 | -1,025 | ,420 | | -2,13 | ,08 |
| | | | 46-65 | -1,101* | ,343 | | -2,00 | -,20 |
| | | | >65 | -1,178* | ,440 | | -2,34 | -,02 |
| | | 31-45 | 18-30 | 1,025 | ,420 | | -,08 | 2,13 |
| | | | 46-65 | -,076 | ,390 | | -1,10 | ,95 |
| | | | >65 | -,153 | ,477 | | -1,41 | 1,11 |
| | | 46-65 | 18-30 | 1,101* | ,343 | | ,20 | 2,00 |
| | | | 31-45 | ,076 | ,390 | | -,95 | 1,10 |
| | | | >65 | -,077 | ,411 | | -1,16 | 1,01 |
| | | >65 | 18-30 | 1,178* | ,440 | | ,02 | 2,34 |
| | | | 31-45 | ,153 | ,477 | | -1,11 | 1,41 |
| | | | 46-65 | ,077 | ,411 | | -1,01 | 1,16 |
| Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? | Tukey HSD | 18-30 | 31-45 | ,186 | ,203 | ,797 | -,34 | ,71 |
| | | | 46-65 | ,417 | ,179 | ,094 | -,05 | ,88 |
| | | | >65 | ,484 | ,201 | ,078 | -,04 | 1,00 |
| | | 31-45 | 18-30 | -,186 | ,203 | ,797 | -,71 | ,34 |
| | | | 46-65 | ,232 | ,200 | ,653 | -,28 | ,75 |
| | | | >65 | ,298 | ,219 | ,526 | -,27 | ,87 |
| | | 46-65 | 18-30 | -,417 | ,179 | ,094 | -,88 | ,05 |
| | | | 31-45 | -,232 | ,200 | ,653 | -,75 | ,28 |
| | | | >65 | ,067 | ,198 | ,987 | -,44 | ,58 |
| | | >65 | 18-30 | -,484 | ,201 | ,078 | -1,00 | ,04 |
| | | | 31-45 | -,298 | ,219 | ,526 | -,87 | ,27 |
| | | | 46-65 | -,067 | ,198 | ,987 | -,58 | ,44 |
| | Dunnett C | 18-30 | 31-45 | ,186 | ,201 | | -,34 | ,71 |
| | | | 46-65 | ,417 | ,185 | | -,07 | ,90 |
| | | | >65 | ,484 | ,211 | | -,07 | 1,04 |
| | | 31-45 | 18-30 | -,186 | ,201 | | -,71 | ,34 |
| | | | 46-65 | ,232 | ,184 | | -,25 | ,72 |
| | | | >65 | ,298 | ,210 | | -,26 | ,85 |
| | | 46-65 | 18-30 | -,417 | ,185 | | -,90 | ,07 |
| | | | 31-45 | -,232 | ,184 | | -,72 | ,25 |
| | | | >65 | ,067 | ,195 | | -,45 | ,58 |
| | | >65 | 18-30 | -,484 | ,211 | | -1,04 | ,07 |
| | | | 31-45 | -,298 | ,210 | | -,85 | ,26 |
| | | | 46-65 | -,067 | ,195 | | -,58 | ,45 |

*. A diferença média é significativa no nível 0.05.

# **Appendix D –** Independent Samples T-Test (Purpose of Travel)

**Estatísticas de grupo**

| | Do you typically fly for: | N | Média | Erro Desvio | Erro padrão da média |
|---|---|---|---|---|---|
| How satisfied do you usually get with the information you obtain? | Leisure | 239 | 7,51 | 1,111 | ,072 |
| | Business | 61 | 7,25 | ,943 | ,121 |
| How important it would be for you to be wisely advised when planning your trip? | Leisure | 239 | 8,05 | 1,855 | ,120 |
| | Business | 61 | 8,49 | 1,433 | ,184 |
| How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? | Leisure | 239 | 7,51 | 2,118 | ,137 |
| | Business | 61 | 7,54 | 2,062 | ,264 |
| How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? | Leisure | 239 | 7,06 | 2,485 | ,161 |
| | Business | 61 | 7,02 | 2,102 | ,269 |
| Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? | Leisure | 239 | 6,21 | 2,446 | ,158 |
| | Business | 61 | 5,67 | 2,501 | ,320 |
| Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? | Leisure | 239 | 2,60 | 1,239 | ,080 |
| | Business | 61 | 2,18 | 1,041 | ,133 |

**Teste de amostras independentes**

| | | Teste de Levene para igualdade de variâncias | | teste-t para Igualdade de Médias | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Intervalo de Confiança da Diferença | |
| | | Z | Sig. | t | df | Sig. (2 extremidades) | Diferença média | Erro padrão de diferença | Inferior | Superior |
| How satisfied do you usually get with the information you obtain? | Variâncias iguais assumidas | 3,336 | ,069 | 1,736 | 298 | ,084 | ,269 | ,155 | -,036 | ,573 |
| | Variâncias iguais não assumidas | | | 1,913 | 106,697 | ,058 | ,269 | ,140 | -,010 | ,547 |
| How important it would be for you to be wisely advised when planning your trip? | Variâncias iguais assumidas | 2,979 | ,085 | -1,731 | 298 | ,085 | -,442 | ,255 | -,944 | ,060 |
| | Variâncias iguais não assumidas | | | -2,014 | 116,921 | ,046 | -,442 | ,219 | -,876 | -,007 |
| How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? | Variâncias iguais assumidas | ,295 | ,587 | -,115 | 298 | ,909 | -,035 | ,302 | -,630 | ,560 |
| | Variâncias iguais não assumidas | | | -,117 | 94,927 | ,907 | -,035 | ,297 | -,625 | ,556 |
| How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? | Variâncias iguais assumidas | 2,384 | ,124 | ,134 | 298 | ,894 | ,046 | ,346 | -,635 | ,728 |
| | Variâncias iguais não assumidas | | | ,148 | 107,042 | ,883 | ,046 | ,313 | -,575 | ,668 |
| Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? | Variâncias iguais assumidas | ,785 | ,376 | 1,524 | 298 | ,129 | ,537 | ,352 | -,157 | 1,231 |
| | Variâncias iguais não assumidas | | | 1,503 | 91,475 | ,136 | ,537 | ,357 | -,172 | 1,247 |
| Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? | Variâncias iguais assumidas | 4,144 | ,043 | 2,424 | 298 | ,016 | ,418 | ,172 | ,079 | ,757 |
| | Variâncias iguais não assumidas | | | 2,688 | 107,696 | ,008 | ,418 | ,156 | ,110 | ,726 |

**Appendix E –** Online Survey exported from Google Forms



# Airline Service & Innovation Survey

Hi! My name is Miguel Sarmento and I am currently developing my Master's Thesis on airline products and services for the MSc of Management at ISCTE Business School, Lisbon.

Thank you in advance for taking the time to complete this survey that will help me collect the appropriate data to conduct my research. The survey will take approximately 7 minutes.

The survey is entirely anonymous and all the data collected is confidential and will be exclusively used for the purpose of this thesis.

In case of any concerns, please do not hesitate to contact me via email: mfbrs@iscte-iul.pt
* Required

## TICKET ACQUISITION & JOURNEY EXPERIENCE

Please provide some informations about your ticket acquisition and journey experience.

1. Do you usually fly in TAP Air Portugal? *

*Mark only one oval.*

- ◯ Yes *Skip to question 3*
- ◯ No *Skip to question 2*

## TICKET ACQUISITION & JOURNEY EXPERIENCE

2. Did you fly with TAP Air Portugal in the last 5 years and remember how was your flight experience?

*Mark only one oval.*

- ◯ Yes *Skip to question 3*
- ◯ No *Skip to question 10*

## TICKET ACQUISITION & JOURNEY EXPERIENCE

3. How do you evaluate the overall value offered by TAP Air Portugal? *

*Mark only one oval.*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Extremely Bad | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | Extremely Good |

## TICKET ACQUISITION & JOURNEY EXPERIENCE

4. Where do you usually purchase your flight ticket when flying with TAP Air Portugal? *

*Mark only one oval.*

- ◯ Flytap.pt (TAP Website) *Skip to question 16*
- ◯ Online Travel Agent/Metasearch (e.g., Expedia, Skyscanner, Kayak, eDreams, etc.) *Skip to question 5*
- ◯ Physical Travel Agent *Skip to question 5*
- ◯ TAP Ticket Office *Skip to question 5*
- ◯ Do not remember *Skip to question 16*
- ◯ Other: _____

TICKET ACQUISITION & JOURNEY EXPERIENCE

5. Did you go to flytap.pt before purchasing your ticket? *

*Mark only one oval.*

- ◯ I went but I didn't buy there *Skip to question 6*
- ◯ I didn't go to the website *Skip to question 7*

TICKET ACQUISITION & JOURNEY EXPERIENCE

6. Why did you go to flytap.pt but didn't buy there? *

*Check all that apply.*

- ☐ Lack of fares comparison
- ☐ For the similar price I preferred to buy on other place
- ☐ Not a competitive price
- ☐ Complex purchase process
- ☐ Too much irrelevant product choices
- ☐ Poor user experience
- ☐ Excessive security measures
- Other: ☐ _____

*Skip to question 16*

TICKET ACQUISITION & JOURNEY EXPERIENCE

Why didn't you go to flytap.pt? *

- ◯ I don't usually buy on Airline Websites *Skip to question 8*
- ◯ Didn't remember to go to flytap.pt *Skip to question 16*
- ◯ I am not aware of flytap.pt *Skip to question 16*
- ◯ Formerly I used to go but nowadays I don't *Skip to question 9*
- ◯ Other: _____

TICKET ACQUISITION & JOURNEY EXPERIENCE

8. Why don't you usually buy on Airline Websites? *

*Check all that apply.*

- ☐ Lack of fares comparison
- ☐ For the similar price I preferred to buy on other place
- ☐ Not a competitive price
- ☐ Complex purchase process
- ☐ Too much irrelevant product choices
- ☐ Poor user experience
- ☐ Excessive security measures
- Other: ☐ _____

*Skip to question 16*

TICKET ACQUISITION & JOURNEY EXPERIENCE

9. Why formerly you used to go but nowadays you don't? *

*Check all that apply.*

- ☐ Lack of fares comparison
- ☐ For the similar price I preferred to buy on other place
- ☐ Not a competitive price
- ☐ Complex purchase process
- ☐ Too much irrelevant product choices
- ☐ Poor user experience
- ☐ Excessive security measures
- Other: ☐ _____

*Skip to question 16*

TICKET ACQUISITION & JOURNEY EXPERIENCE

10. Where do you usually purchase your airline ticket? *

*Mark only one oval.*

- ◯ Directly from the Airline Website *Skip to question 16*
- ◯ Through an Online Travel Agent/Metasearch (e.g., Expedia, Skyscanner, Kayak, eDreams, etc.)
- ◯ Through the Airline Tickect Office
- ◯ Through a Physical Travel Agent
- ◯ Other: _____

TICKET ACQUISITION & JOURNEY EXPERIENCE

11. Did you go to the Airline Website before purchasing your ticket? *

*Mark only one oval.*

- ◯ I went but I didn't buy there
- ◯ I didn't go to the website *Skip to question 13*

TICKET ACQUISITION & JOURNEY EXPERIENCE

12. Why did you go to the Airline Website but didn't buy there? *

*Check all that apply.*

- ☐ Lack of fares comparison
- ☐ For the similar price I preferred to buy on other place
- ☐ Not a competitive price
- ☐ Complex purchase process
- ☐ Too much irrelevant product choices
- ☐ Poor user experience
- ☐ Excessive security measures
- Other: ☐ _____

*Skip to question 16*

TICKET ACQUISITION & JOURNEY EXPERIENCE

13. Why didn't you go to the Airline Website? *

*Mark only one oval.*

- I don't usually buy on Airline Websites — *Skip to question 14*
- Didn't remember to go to the Website — *Skip to question 16*
- I am not aware of the Airline Website — *Skip to question 16*
- Formerly I used to go but nowadays I don't — *Skip to question 15*
- Other: _____

## TICKET ACQUISITION & JOURNEY EXPERIENCE

14. Why don't you usually buy on Airline Websites? (2) *

*Check all that apply.*

- [ ] Lack of fares comparison
- [ ] For the similar price I preferred to buy on other place
- [ ] Not a competitive price
- [ ] Complex purchase process
- [ ] Too much irrelevant product choices
- [ ] Poor user experience
- [ ] Excessive security measures
- [ ] Other: _____

*Skip to question 16*

## TICKET ACQUISITION & JOURNEY EXPERIENCE

15. Why you formerly used to go but nowadays you don't? *

*Check all that apply.*

- [ ] Lack of fares comparison
- [ ] For the similar price I preferred to buy on other place
- [ ] Not a competitive price
- [ ] Complex purchase process
- [ ] Too much irrelevant product choices
- [ ] Poor user experience
- [ ] Excessive security measures
- [ ] Other: _____

## PASSENGER JOURNEY

16. Which type of informations do you search when booking/planning a trip? *

*Check all that apply.*

- [ ] Flight Tickets
- [ ] Accommodation
- [ ] Places to Visit
- [ ] Restaurants
- [ ] Tours
- [ ] Insurance
- [ ] Airport Transfers
- [ ] Local Transportation
- [ ] Rent a Car
- [ ] Other: _____

17. Which of these is usually more difficult to find? *

*Check all that apply.*

- [ ] Flight Tickets
- [ ] Accommodation
- [ ] Places to Visit
- [ ] Restaurants
- [ ] Tours
- [ ] Insurance
- [ ] Airport Transfers
- [ ] Local Transportation
- [ ] Rent a Car
- [ ] Other: _____

18. Where do you search in order to obtain such information? *

*Check all that apply.*

- [ ] Recommendation of Friends/Relatives or Colleagues
- [ ] Personal experience
- [ ] Internet Websites
- [ ] Airline Website
- [ ] Social Media Apps
- [ ] Travel Agencies/Tourism Offices
- [ ] Paid Guidebooks, Magazines
- [ ] Newspaper, Radio, TV
- [ ] Free Catalogues, Brochures
- [ ] Other: _____

19. How would you measure the importance of the following sources of information? *

*Mark only one oval per row.*

| | Not at all Important | Slightly Important | Moderately Important | Very Important | Extremely Important |
|---|---|---|---|---|---|
| Recommendation of Friends/Relatives or Colleagues | ◯ | ◯ | ◯ | ◯ | ◯ |
| Personal experience | ◯ | ◯ | ◯ | ◯ | ◯ |
| Internet Websites | ◯ | ◯ | ◯ | ◯ | ◯ |
| Airline Website | ◯ | ◯ | ◯ | ◯ | ◯ |
| Social Media Apps | ◯ | ◯ | ◯ | ◯ | ◯ |
| Travel Agencies/Tourism Offices | ◯ | ◯ | ◯ | ◯ | ◯ |
| Paid Guidebooks, Magazines | ◯ | ◯ | ◯ | ◯ | ◯ |
| Newspaper, Radio, TV | ◯ | ◯ | ◯ | ◯ | ◯ |
| Free Catalogues, Brochures | ◯ | ◯ | ◯ | ◯ | ◯ |

20. How satisfied do you usually get with the information you obtain? *

*Mark only one oval.*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Not at all Satisfied | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | Extremely Satisfied |

21. How important it would be for you to be wisely advised when planning your trip? *

*Mark only one oval.*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Not at all Important | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | Extremely Important |

22. How reliable you consider it would be if the Airline Company provided all the personalized information, free of charge, which you pretended to organize/plan your trip? *

*Mark only one oval.*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Not at all Reliable | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | Extremely Reliable |

23. How useful it would be if the Airline purposed you some customized travel choices (e.g., Flight+Hotel+Activities+etc.) based on your personal preferences? *

*Mark only one oval.*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Not at all Useful | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | Extremely Useful |

24. Nowadays, do you think that after selling an airplane ticket, Airline's main goal is for the passenger to make the most of his trip? *

*Mark only one oval.*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Not at all | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | Yes, definitely |

25. On layovers with waits between 6 to 24 hours, what kind of activities would you appreciate that airlines propose to you in order to occupy your time? *

Layover: < 24 hours stop (Layover=Escala - PT)

*Check all that apply.*

- ☐ Quick City Tour
- ☐ Airport Lounge
- ☐ Digital Entertainment (Netflix, Spotify, etc.)
- ☐ Quick Online Courses
- ☐ Local Gastronomic Experience
- ☐ Local Wine Tasting
- ☐ Half-day Hotel Stay
- ☐ Spa Treatment
- ☐ Gym Training Session
- ☐ I do not need any activity
- Other: ☐ _____

26. Would you be interested to have the option of making an intentional stopover before your final destination, with no extra flight cost, where the airline would propose you accommodation and personalized activity choices, for a minimum period of 24 hours to a maximum period of 2 days? *

Stopover: > 24 hours stop

*Mark only one oval.*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Not at all Interested | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | Extremely Interested |

27. Choose 3 of the following Air categories that are the most significant for you when flying medium haul? *

Medium haul -> 3 to 6 hours of flight

*Check all that apply.*

- ☐ Ticket Fee
- ☐ Flight Entertainment
- ☐ Departure on Time
- ☐ Baggage Room
- ☐ Flight Meal
- ☐ Flight Seat
- ☐ Frequent Flight Program
- ☐ Passage Facilities

Other: ☐ _____

28. Choose 3 of the following Air categories that are the most significant for you when flying long haul? *

Long Haul -> +6 hours of flight

*Check all that apply.*

- ☐ Ticket Fee
- ☐ Flight Entertainment
- ☐ Departure on Time
- ☐ Baggage Room
- ☐ Flight Meal
- ☐ Flight Seat
- ☐ Frequent Flight Program
- ☐ Passage Facilities

Other: ☐ _____

29. Choose 3 of the following Non-Air categories that are the most significant for you when flying? *

*Check all that apply.*

- [ ] Accommodation
- [ ] Places to Visit
- [ ] Restaurants
- [ ] Tours
- [ ] Local Transportation
- [ ] Digital Entertainment (Netflix, Spotify, etc.)
- [ ] Insurance

Other: [ ] _____

30. Would you buy an airplane ticket where the airline could change your flight to the previous day or to the day after, as long as you were refunded? *

*Mark only one oval.*

- ◯ Always
- ◯ Often
- ◯ Occasionally
- ◯ Rarely
- ◯ Never

PASSENGER INFORMATION

Please provide some personal information about yourself.

31. Gender: *

*Mark only one oval.*

- ◯ Male
- ◯ Female
- ◯ Prefer not to say

32. Age group: *

*Mark only one oval.*

- ◯ <18
- ◯ 18-30
- ◯ 31-45
- ◯ 46-65
- ◯ >65

33. Region of residence: *

*Mark only one oval.*

- ◯ Europe
- ◯ North America
- ◯ South America
- ◯ Asia
- ◯ Australia & Oceania
- ◯ Africa
- ◯ Prefer not to say

34. Which of the following describes you best? *

*Mark only one oval.*

- ◯ Employed
- ◯ Student
- ◯ Self Employed
- ◯ Retired
- ◯ Not Employed
- ◯ Prefer not to say
- ◯ Other: _____

35. How often do you travel by airplane? (Please consider the pre-COVID period) *

*Mark only one oval.*

- ◯ Weekly
- ◯ Monthly
- ◯ Once a trimester
- ◯ Once a semester
- ◯ Once a year
- ◯ Never

36. Do you typically fly for: *

*Mark only one oval.*

- ◯ Leisure
- ◯ Business
- ◯ Other: _____


01/11/2020 Airline Service & Innovation Survey

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