



Strategy Case Study

***Generating Public Value
while Navigating a Crisis:
Madeira's Strategic Management
Approach to COVID-19***

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Dissertation written under the supervision of Prof. Nuno Cardeal

Dissertation submitted in partial fulfilment of requirements for the MSc in Management with Specialization in Strategy and Entrepreneurship, at the Universidade Católica Portuguesa, January 2021.

Abstract

Title: Generating Public Value while Navigating a Crisis: Madeira's Strategic Management Approach to COVID-19

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Keywords: Adaptation; Autonomous Region of Madeira; COVID-19; Crisis; Dynamic Capabilities; Government; Public Sector; Resources and Capabilities; Strategy.

In the post-COVID-19 economy, the tourism industry has suffered greatly due to travel restrictions, city and country curfews and the fear of uncertainty. To overcome all of these new challenges, the Autonomous Region of Madeira (ARM) quickly implemented measures to control the spread of the virus, while trying to retain safety, normalcy and economic activity. These measures included limiting the archipelago's accessibility by air travel, through mandatory PCR testing and the implementation of the MadeiraSafe Traveler Registration platform.

This case study focuses on investigating the adaptive challenges that the Regional Secretariat of Tourism and Culture (RSTC) and the Madeira Promotion Bureau (MPB), along with the Regional Health Secretariat (RHS) and Institute of Health Administration (IHA), had to face in order to maintain Madeira as a competitive destination and minimize tourism losses while ensuring the safety of the ARM's citizens, fulfilling therefore the government's goal of generating public value. Thus, it covers topics ranging from an analysis of the ARM's tourism sector to the development and implementation processes of the new passenger control system as well as a brief analysis of the pandemic's impacts.

This dissertation consequently challenges students to apply their academic knowledge to a real-world crisis scenario, focusing on bridging strategic management topics to the public sector.

Resumo

Título: Generating Public Value while Navigating a Crisis: Madeira's Strategic Management Approach to COVID-19

Autor: Tomás Daniel Cardoso André dos Santos

Palavras-chave: Adaptação; Capacidades Dinâmicas; COVID-19; Crise; Estratégia; Governo; Recursos e Capacidades; Região Autónoma da Madeira; Setor Público.

Na economia pós-COVID-19, a indústria do turismo tem sofrido significativamente devido a restrições de viagem, ao confinamento de cidades e de países e ao medo da incerteza. Para ultrapassar todos estes novos desafios, a Região Autónoma da Madeira (RAM) rapidamente implementou medidas para conter a propagação do vírus, tentando simultaneamente manter a segurança, a normalidade e a atividade económica. Estas medidas incluíram a limitação da acessibilidade do arquipélago por meios aéreos, através de testagem PCR obrigatória e da implementação da plataforma de registo de passageiros MadeiraSafe.

Este caso de estudo foca-se na investigação dos desafios adaptativos que a Secretaria Regional do Turismo e Cultura (SRTC) e a Associação de Promoção da Madeira (APM), juntamente com a Secretaria Regional da Saúde e o Instituto de Administração da Saúde (IASAUDE), tiveram de enfrentar para manter a Madeira como um destino competitivo e minimizar as perdas no setor do turismo, ao mesmo tempo que asseguravam a segurança dos cidadãos da RAM, cumprindo consequentemente o objetivo governamental de criar valor público. Assim sendo, este caso aborda tópicos como uma análise do setor do turismo da RAM, os processos de desenvolvimento e implementação do novo sistema de controlo de passageiros e uma breve análise dos impactos da pandemia.

Esta tese desafia consequentemente os alunos a aplicarem o seu conhecimento académico a um cenário real de crise, focando-se na ponte entre tópicos de gestão estratégica e o setor público.

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Furthermore, I wish to demonstrate my gratitude to the ARM's government and institutions, that were always eager to help me, and who went the extra mile many times to ensure that I could gather a better understanding of the situation. Their assistance gave this thesis a new light and provided me an insider grasp of the measures' implementation. I am especially indebted to the MPB team, for all of the interviews and tours, as well as to the RSTC, RHS and IHA.

I would also like to give my deepest thanks to my family, especially my parents and my sister, who not only supported me during this period, but throughout my whole life, always pushing me to be the best version of myself I can be. Additionally, I would like to thank my girlfriend, for the continuous support, inspiration and encouragement.

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List of Abbreviations

ADR – Average Daily Rate

ARM – Autonomous Region of Madeira

COVID-19 – Corona Virus Disease 2019

DC – Dynamic Capabilities

DREM – Regional Statistics Directorate of Madeira (Direção Regional de Estatística da Madeira)

EU – European Union

GDP – Gross Domestic Product

H – High

IHA – Institute of Health Administration

INE – National Statistics Institute (Instituto Nacional de Estatística)

KPI – Key Performance Indicator

KSF – Key Success Factors

L – Low

M – Medium

MPB – Madeira Promotion Bureau

PCR – Polymerase Chain Reaction

QR – Quick Response

R&C – Resources and Capabilities

RBV – Resource-Based View

RevPAR – Revenue Per Available Room

RHS – Regional Health Secretariat

RSTC – Regional Secretariat of Tourism and Culture

SARS-CoV-2 – Severe Acute Respiratory Syndrome Coronavirus 2

SWOT – Strengths, Weaknesses, Opportunities and Threats

UK – United Kingdom

USA – United States of America

VAT – Value Added Tax

VRI – Value, Rarity, Imitability

VRIO – Value, Rarity, Imitability, Organization

WHO – World Health Organization

YoY – Year-over-Year

1. Introduction

1.1. Madeira, What It Has to Offer and the Tourism Status Quo

Discovered in 1419 by Portuguese navigators¹, the Madeira islands are known today for their warm and calm waters, their unmistakable topography, their World Heritage forest, and their many traditions such as the Flower Festival or the characteristic New Year's Eve celebrations.

All of these factors contribute to their booming tourism sector, which accounted for 25% of the regional GDP in 2019², and totaled 1.6 million tourists, 78.7% of them arriving from outside Portugal.

1.2. The Institutional Side to Tourism in the ARM

The Autonomous Region of Madeira's (ARM) government has supported the development of this industry through both the Regional Secretariat of Tourism and Culture (RSTC) and the Madeira Promotion Bureau (MPB), which have complementary roles.

The RSTC's mission is to *“define, promote, coordinate and evaluate the regional policy in the sectors of tourism, culture, airports and air transports”*³. Therefore, it lies within the RSTC's responsibilities to:

- promote the execution of the policies pertaining to these sectors
- define the strategy through which the ARM will promote itself as a touristic destination, its brands and its products
- plan, coordinate and develop the region's events and celebrations
- ensure the cooperation between public and private entities in these domains, whether they are regional, national, European or international

All while assuring that the overarching strategy allows for the sustainable, articulated and balanced development of all of these sectors.

In order to better fulfill this latter responsibility, the MPB was created to act as an intermediary between the public and private sectors. It is a non-profit Destination Marketing Organization, founded in 2004 by the Regional Tourism Directorate (a sub-division of the

¹ <http://www.visitmadeira.pt/en-gb/madeira/history>

² <https://www.dinheirovivo.pt/economia/nacional/impacto-na-economia-da-madeira-e-superior-a-mil-milhoes-de-euros-12688362.html>

³ <https://www.madeira.gov.pt/Portals/31/Imagens/Noticias/ISerie-013-2020-01-20.pdf>

RSTC) and the Commercial and Industrial Association of Funchal⁴. The MPB is responsible for promoting Madeira as a touristic destination, while following the guidelines and annual activity plans developed by the RSTC. This includes initiatives such as events, congresses, partnerships and other promotional actions.

1.3. The Pandemic Strikes

COVID-19 is a recently discovered infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). The first cases originated in China, in December 2019, and, since then, the disease has spread throughout the world, with the World Health Organization (WHO) classifying this situation as a public health emergency on January 30th⁵, and it later resulting in a pandemic⁶. As of December 2020, over 70 million cases have been identified, throughout 191 territories⁷, with the WHO estimating that 1 in 10 individuals might have been infected⁸.

Portugal had its first cases of the disease on the 2nd of March of 2020. Community transmission was detected on March 12th. An Emergency State, encompassing a mandatory quarantine, was declared on March 18th and cancelled May 2nd⁹. As of December 2020, Portugal had over 370 thousand cases¹⁰.

In the ARM specifically, a State of Alert was declared on March 13th, with the first case being registered 4 days later, on March 17th. As of December 2020, Madeira had just over 1200 cases¹¹.

Current information indicates that the virus can be transmitted from person-to-person, whether directly or through contaminated surfaces¹² with safety guidelines being limited to the use of a mask, social distancing, and frequent handwashing.

⁴ <https://www.apmadeira.pt/pt/quem-somos>

⁵ [https://www.who.int/director-general/speeches/detail/who-director-general-s-statement-on-ihr-emergency-committee-on-novel-coronavirus-\(2019-ncov\)](https://www.who.int/director-general/speeches/detail/who-director-general-s-statement-on-ihr-emergency-committee-on-novel-coronavirus-(2019-ncov))

⁶ <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/q-a-coronaviruses>

⁷ <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

⁸ <https://www.bbc.com/news/world-54422023>

⁹ https://en.wikipedia.org/wiki/COVID-19_pandemic_in_Portugal

¹⁰ <https://covid19.min-saude.pt/ponto-de-situacao-actual-em-portugal/>

¹¹ <https://covidmadeira.pt/ponto-de-situacao/>

¹² <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/q-a-how-is-covid-19-transmitted>

2. Tourism in Madeira, Pre-Pandemic

2.1. Positioning, Offer and Target Markets

Up until 2014, Madeira positioned itself as a destination with a moderate winter climate, but mostly as a “beach and sun” summer destination. However, in order to better capture tourism, it underwent a small positioning shift to an all-year nature destination, complemented by culture, history, gastronomy and wine, with the goal of decreasing seasonality, increasing tourism expense, preserving its environment and leveraging the Funchal area as a contact point with culture, history and gastronomy.

Regarding the island of Porto Santo, its traditional positioning was as a seasonal beach destination, which was altered toward an all-year well-being destination, at a physical, mental and emotional level, using the beach setting as a backdrop. Once more, the goal of this change was to lessen the seasonality faced by the tourism sector and consequently increase tourism revenue.

Therefore, Madeira classifies its strategic offers on three levels:

- **Strategic Offerings**, central to the touristic experience, which include:
 - a) Nature
 - b) Cultural and sightseeing activities (e.g., unique toboggan and cable car rides)
 - c) Nature and adventure sports
 - d) Nautical sports
 - e) Sun and the sea
- **Complementary Offerings**, that enrich the core experience significantly:
 - a) Health and well-being
 - b) Gastronomy
 - c) Madeira Wine
- **Secondary Offerings**, which are high-quality but niche offerings:
 - a) Meeting Industry
 - b) Golf
 - c) Resort and Residential

Madeira’s promotion strategy hinges additionally on the following division of its target markets:

- **Tier 1 - Priority Markets**, which are well-aware of Madeira’s tourism industry and are major clients: Portugal, Germany, United Kingdom and France. As of 2019, 21.3% of the guests in Madeira originated from Portugal, 19.1% from Germany, 18.5% from the United Kingdom and 10.3% from France. Additionally, tourist profile reports show that 80% of Britons and 70% of Germans have heard of Madeira, with it receiving a 4.2/5 recommendation from the former and 3.9/5 from the latter, as of 2018¹³.
- **Tier 2 - Developing Markets**, which show growth potential and are interested in destinations with similar offerings to Madeira: Netherlands, Spain, Poland, Denmark, Sweden, Belgium, Finland, Switzerland, Norway, Austria and Italy. In 2019, these markets were responsible for 22.5% of the guests.
- **Tier 3 - Diversification Markets**, which are those that present growth potential, however, due to their size and customer’s travelling habits, require significant and specific investment: Russia, USA, Brazil, Canada and China.

Nuno Vale, the executive director of the MPB, described the region’s original strategic bets for the year of 2020 as to diversify its incoming markets, by expanding toward the American markets, specifically with a strong impulse toward the USA, Brazil and Canada, as well as to consolidate its foothold on its current markets in the European continent. As of 2019, the American continent, as a whole, was responsible for only 2.6% of the guests in Madeira, with the European continent being responsible for 92.4%.

Madeira’s main competitors, using the same “nature complemented with culture” approach, are the following: Azores Islands, Canary Islands, Balearic Islands, Greece and Croatia.

2.2. Key Performance Indicators

Tourism is considered to be the main source of wealth creation in Madeira¹⁴. The direct impact of tourism-related companies, such as accommodation establishments, travel agencies, rent-a-cars and restaurants accounts for 25% to 30% of its GDP, along with representing 12% to 15% of all jobs, accounting for roughly 20 thousand people¹⁵. This income has additional indirect impacts on sectors such as commerce, real estate and transportation.

¹³ https://www.apmadeira.pt/media/2064/turista_reino-unido.pdf; https://www.apmadeira.pt/media/2061/turista_alemao.pdf

¹⁴ https://www.portugal2020.pt/sites/default/files/erei_madeira_0.pdf

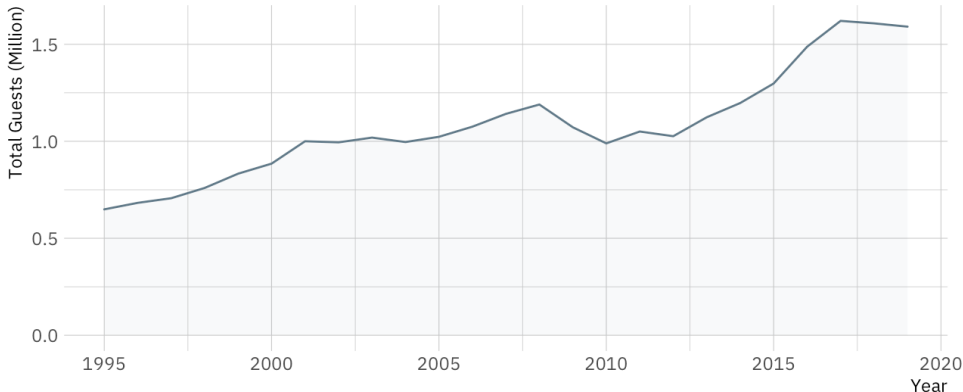
¹⁵ <https://www.dinheirovivo.pt/economia/nacional/impacto-na-economia-da-madeira-e-superior-a-mil-milhoes-de-euros-12688362.html>

In order to understand the trends and the importance of tourism in Madeira, we will start by analyzing the Key Performance Indicators (KPIs) of its accommodation industry and their evolution from 1995¹⁶ to 2019:

- **Total Guests:** This variable comprises all of the guests that were present in Madeira in a certain time period, including those that were already in Madeira in the previous month. As of 2019, Madeira had 1.6M guests per year, a 145.1% increase from 1995.

Total Guests in the ARM per Year

Evolution from 1995 to 2019



Source: Direção Regional de Estatística da Madeira

- **Total Stays:** Encompasses the total number of nights that the total number of guests spent in Madeira for a certain time frame. This value was of 8.1M in 2019, representing 104.9% growth from the base year.

Total Stays in the ARM per Year

Evolution from 1995 to 2019



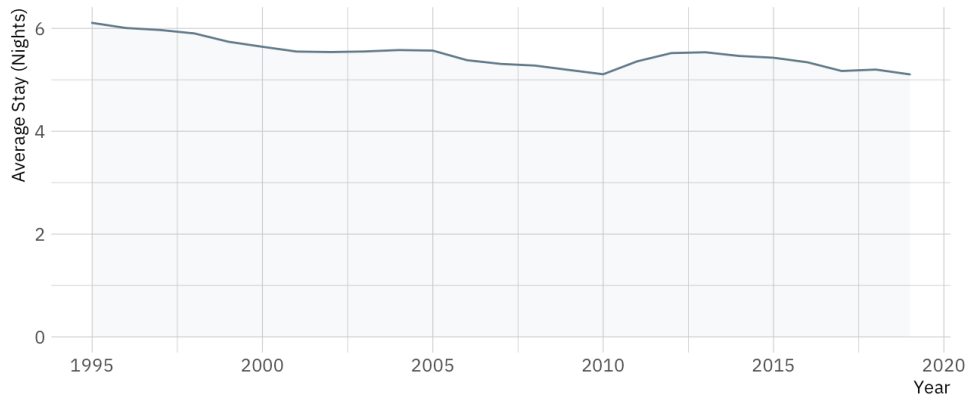
Source: Direção Regional de Estatística da Madeira

¹⁶ The year of 1995 was chosen as the first year of our long-run trend analysis, as it was the first year in which the data started accounting not only for hotels, but also rural and housing tourism establishments. It should be noted that there is a slight bias in the data, as the data set grew to encompass additional accommodation establishments until 2012. The overall weight of these, however, is marginal. This dataset contains observations from both DREM and INE.

- **Average Stay:** The total number of nights spent per each guest in Madeira, on average. Its value in 2019 was of 5.11 nights, representing a 16.4% decrease from 1995.

Average Stay in the ARM per Year

Evolution from 1995 to 2019

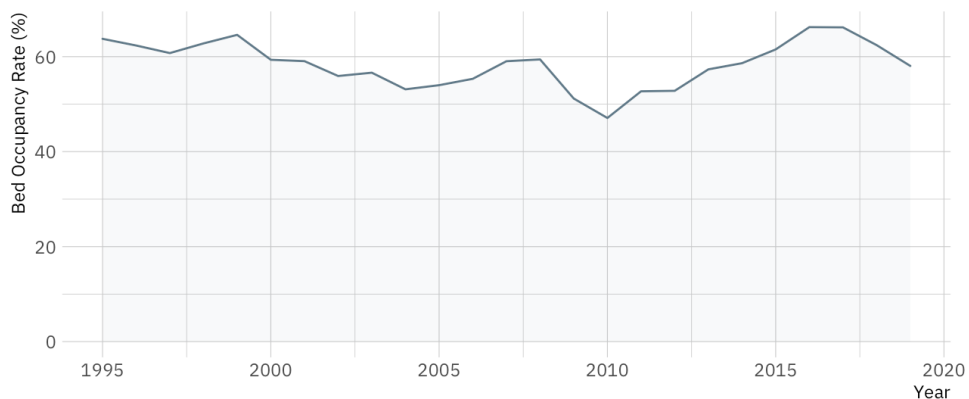


Source: Direção Regional de Estatística da Madeira

- **Bed Occupancy Rate:** Indicates the relationship between the number of stays and the number of available beds¹⁷ for the time period in case. This value was of 58% for 2019, representing a 9.0% decrease from the base year.

Bed Occupancy Rate in the ARM per Year

Evolution from 1995 to 2019



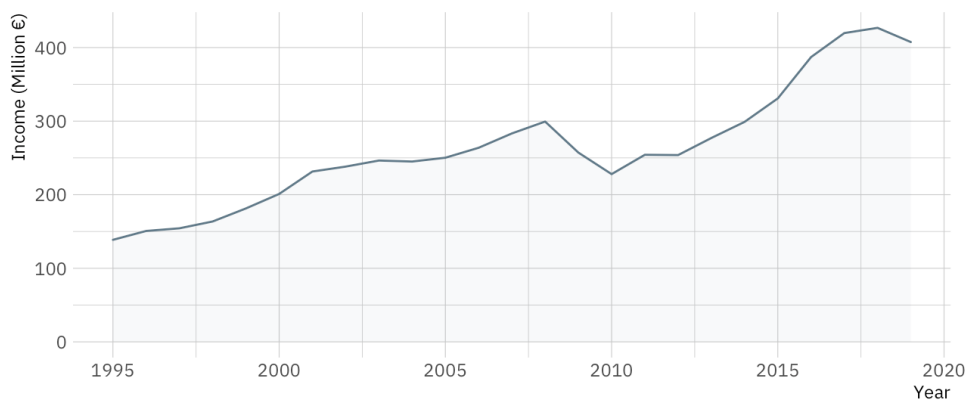
Source: Direção Regional de Estatística da Madeira

¹⁷ A double-sized bed is considered as two beds.

- **Total Income:** The income resulting from the activities exercised by all accommodation establishments, without VAT. It includes not only room income but also income derived from restaurants and any other economic activities stemming from accommodation, such as laundry and phone services and meeting room rentals. This value faced an increase of 205.7% since 1995, corresponding to 407.5M€.

Total Income in the ARM per Year

Evolution from 1995 to 2019

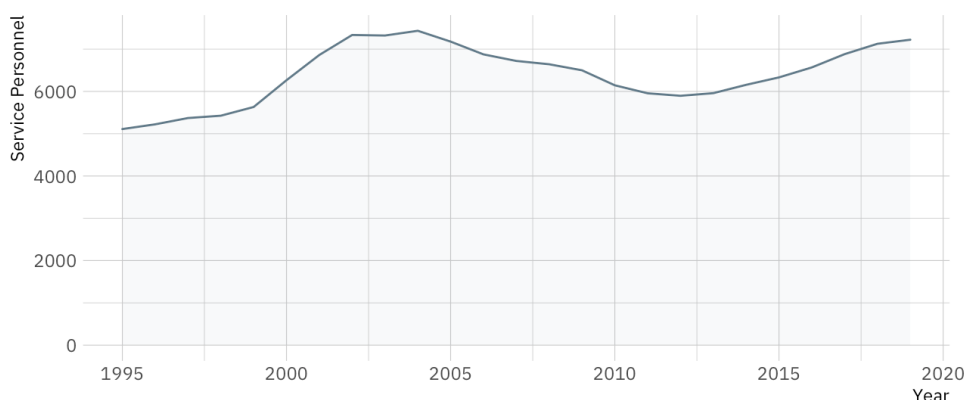


Source: Direção Regional de Estatística da Madeira

- **Service Personnel:** The number of people that participated in the firm's activity during the reference period, independently of the duration of this collaboration and of their contract type. As of 2019, there were 7.2k accommodation employees, representing a 41.3% increase from 1995.

Service Personnel in the ARM per Year

Evolution from 1995 to 2019

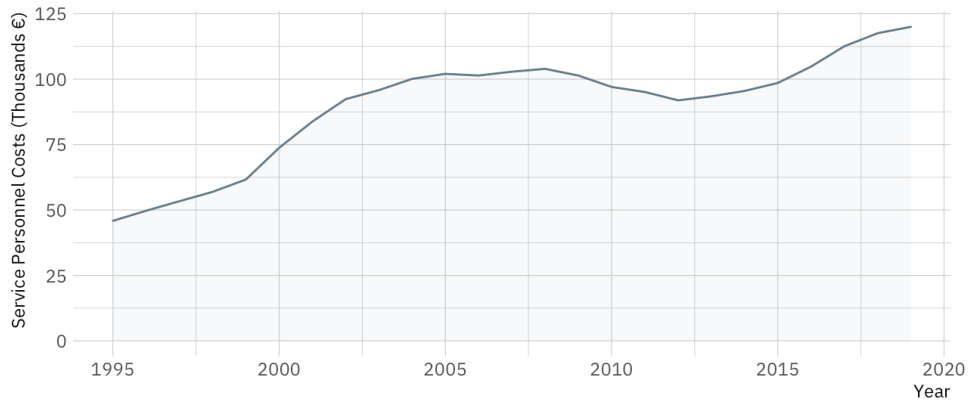


Source: Direção Regional de Estatística da Madeira

- **Personnel Costs:** The costs incurred due to the payment of accommodation personnel. These equaled 120.0M€ in 2019, representing a 161.6% growth from 1995.

Service Personnel Costs in the ARM per Year

Evolution from 1995 to 2019

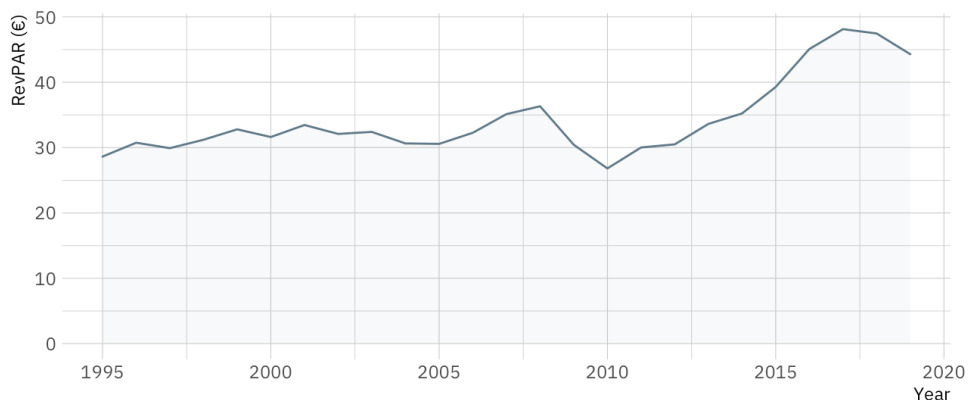


Source: Direção Regional de Estatística da Madeira

- **RevPAR:** The Revenue Per Available Room, i.e., the relationship between room income and the total available number of rooms (both free and occupied) for the reference time period. In 2019, this indicator took the value of 44.29€, showing a 54.7% increase from 1995.

RevPAR in the ARM per Year

Evolution from 1995 to 2019

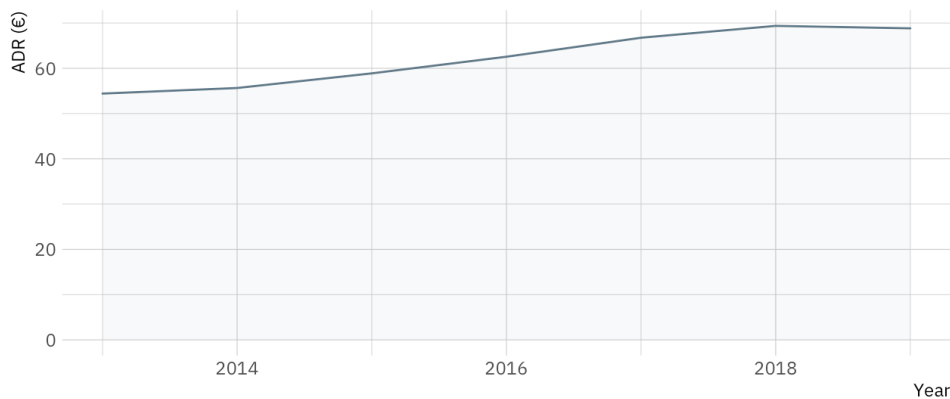


Source: Direção Regional de Estatística da Madeira

- **ADR:** The Average Daily Rate represents the relationship between room income and the number of occupied rooms, in the reference period. Since 2013, the oldest available data point, this value increased by 26.5%, to 68.83€.

Average Daily Rate in the ARM per Year

Evolution from 2013 to 2019

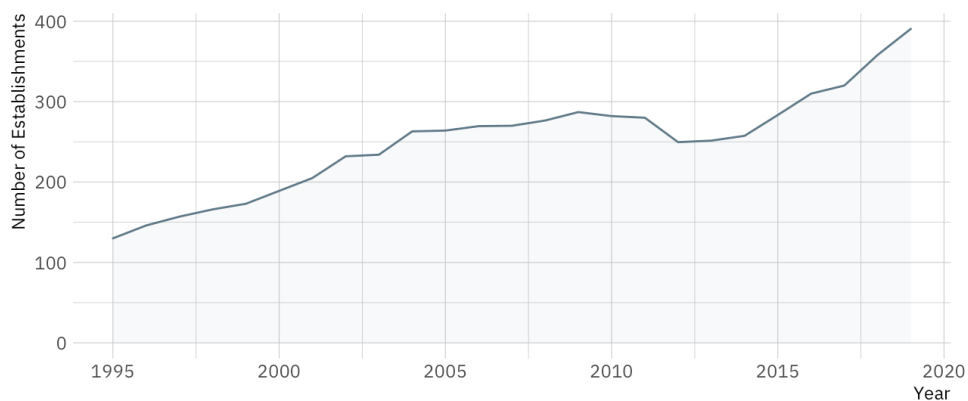


Source: Direção Regional de Estatística da Madeira

- **Accommodation Establishments:** The number of establishments whose major activity consists of providing accommodation and other related services upon payment. These include establishments such as hotels, pensions, inns, motels, apart-hotels, tourism apartments and resort villages. As of 2019, there were 391 accommodation establishments in Madeira, translating to a 200.4% growth from 1995.

Establishments in the ARM per Year

Evolution from 1995 to 2019



Source: Direção Regional de Estatística da Madeira

These indicators provide us with a brief but non-exhaustive view of the recent evolution of Madeira's tourism industry. From these, we can clearly note the ARM's strong tourism presence at a historical level and its very positive growth tendencies, which only temporarily ceased in the period of 2007-2011, corresponding to the global financial crisis. Even this major shock was rapidly overcome, as these KPIs quickly returned to and surpassed the pre-crisis levels. For a slightly more in-depth view, [Section 8.1. *Additional Pre-Pandemic Performance Indicator Analysis*](#) can be consulted.

In sum, the ARM's tourism sector is well-developed, and it showed mostly unwavering growth tendencies in the past 25 years. How will it then respond to the COVID-19 pandemic?

3. What To Do When a Pandemic Strikes

3.1. Dealing with Tourism: Profit or Safety?

The ARM's government and the MPB quickly realized the severity of the current pandemic and reacted accordingly, with President Miguel Albuquerque first speaking of the pandemic's possible impacts as of March 5th¹⁸. While the cases in Portugal were just in their initial stages, the pandemic was becoming increasingly dire across Europe, and Madeira decided to **close its borders on March 15th, 2020**. This decision was heavily thought out, and “took a lot of courage” due to the region's heavy reliance on tourism income, according to the MPB's director. This choice was initially doubted by many firms in the tourism sector, such as travel agencies, restaurants and airlines, but the goal was to sacrifice short-term profits in order to ensure future profitability and the safety of the ARM's population. This served not only to protect the population but to safeguard future tourism income, with the belief that tourists would prefer to avoid destinations with high infection rates.

Madeira, due to its geographic feature of being an island, could almost seclude itself from the rest of the world and ensure 100% safety, however, this would not be feasible, not only due to its reliance on tourism income but especially due to the nature and importance of trade with the rest of the world. Therefore, a timer had started: SARS-Cov-2 would not disappear into thin air and the ARM would need to re-open as soon and as safely as possible.

During this quarantine, **air travel was heavily restricted to only 2 flights per week**, operated by TAP, with a limit of 100 passengers each and a mandatory 14-day quarantine¹⁹. Additionally, ports and docks were fully closed. Miguel Albuquerque stated that they “would do all that is possible in order for the re-opening of the aerial traffic to Madeira to be carried out while maintaining safety conditions for the population”.

The ARM's competent authorities' first answer to re-opening would be to triage and COVID-19 PCR-test each passenger in their origin point. During his interview for the case, Pedro Ramos, the ARM's regional secretary of Health and Civil protection, stated that **the expectation was that there would be a concerted effort amongst the European Union to implement tests in every country before departure**. For example, a German visitor would be tested before his flight to Madeira, he would safely arrive, enjoy his vacation, and before returning he would be tested in the ARM to ensure that there were little-to-no possibilities of

¹⁸ <https://jornaleconomico.sapo.pt/noticias/miguel-albuquerque-admite-que-coronavirus-pode-levar-a-abrandamento-na-economia-da-madeira-555568>

¹⁹ <https://www.dnoticias.pt/2020/5/19/51330-govemo-da-madeira-confirma-que-substitui-quarentena-obrigatoria-por-realizacao-de-teste-a-chegada-a-partir-de-julho>

spreading the virus through travel. However, there was not sufficient pressure for these concerted and integrated measures to be adopted EU-wide, and each region had to take this matter upon its own hands. The ARM's president went as far as stating that EU-level air traffic measures were, at the time, a great blur.

The second-best solution would be for each person travelling to Madeira to, on his own, schedule a PCR test before departing, however, this solution was not adopted because the shortage of tests would severely hamper passengers and add a great amount of complexity.

These factors then led to the following profit-safety compromise: **the ARM, starting from the 1st of July, would require all passengers to present a negative PCR test, made in the 72 hours previous to the disembarkation, in a certified lab, or alternatively, to complete a PCR test upon arrival.** In the former case, the passenger should wait for a negative result, which should take around 12 hours to arrive, in confinement.

3.2. The Solution, in Detail

While the solution above might seem simple at a first glance, there are many additional moving parts necessary for it to work and many other scenarios that must be accounted for.

First, we should consider the cost issue: All passengers with scheduled trips to the ARM can complete COVID-19 PCR tests free of charge, either in the ARM's airports or in selected sample collection stations spread throughout continental Portugal.

Second, in order to keep track of each passenger, it is necessary to answer an **Epidemiological Survey**, made available by the ARM through the **MadeiraSafe** Traveler Registration web app, at madeirasafe.com. This enquiry should be answered from 48 to 12 hours prior to boarding, individually, by each passenger, except for dependents up to 12 years old, whose registration must be included in the answers of one of the accompanying adults. After completing the registration, the passenger will receive an e-mail with an access code and a respective QR Code, which should be shown upon his arrival at one of the ARM's airports. Passengers who completed a PCR test at the origin should also submit their test results in advance.²⁰

Third, all passengers must be **monitored by the Regional Health Authority (RHS)**, either through the aforementioned MadeiraSafe web app, whose usage for symptom tracking is recommended, but voluntary, or by phone.

²⁰ [http://www.visitmadeira.pt/pt-pt/info-uteis/corona-virus-\(covid-19\)/informacoes-aos-visitantes-\(covid-19\)](http://www.visitmadeira.pt/pt-pt/info-uteis/corona-virus-(covid-19)/informacoes-aos-visitantes-(covid-19))

Fourth, every passenger arriving in the ARM's airports must be subject to **thermal triage**, without exception.

Finally, along with the condition that all of those in the ARM must act in accordance with all prevention measures, these correspond to the solution's most relevant details. For a more in-depth view, [Section 8.2. Additional Solution Details, Exemptions and Scenarios](#) includes a comprehensive list of the additional factors and possible occurrences.

3.3. The Solution, in Practice

After all of these details and fail-safes, a new challenge emerged, as it was necessary to implement all of this infrastructure in record time while simplifying the process enough not to disincentivize tourism. The rules above were defined by the ARM's government, but the implementation required a tri-pronged approach made possible by the collaboration of very different entities: the aforementioned **Madeira Promotion Bureau** (in Portuguese, Associação de Promoção da Madeira), **ANA - Airports of Portugal** (ANA – Aeroportos de Portugal), and the **Institute of Health Administration** (IHA; Instituto de Administração de Saúde, also known as IASAÚDE – IPRAM).

Each of these entities served a pivotal role in order to make this solution possible: ANA provided **access to its airport infrastructure**, and collaborated in the process of constructing the necessary facilities in the airport; the IHA designed all of the **sanitary and health operation** parts, and developed the necessary infrastructure for test execution for passengers who were not previously tested and test validation for previously-tested passengers; the MPB took responsibility for the **ease-of-use** of the process and for creating a **welcoming environment** for all passengers.

So, how do the strict rules defined above fit into a cohesive and friendly environment? The first step is for all passengers to form a single line and to have their temperature taken. If they pass the thermal triage, they are then split into two different circuits: the green circuit, if they have the result of a PCR test made in the previous 72 hours, and the blue circuit, if they do not. Passengers who do not pass the thermal triage are immediately confined to a room, in which they will be later tested by a designated health official. Afterwards, the MPB staff (of 15 to 20 people; depending on expected arrivals) checks if passengers have previously registered in the MadeiraSafe web app and if they have the resulting QR code. If the passengers are not registered, the staff will help them do so on their own mobile devices, or on the staff's own tablets. Then, when leaving the inside of the airport, green circuit passengers originally needed

to show the IHA staff their QR code for them to access their test and validate its authenticity. As a new operational update however, the ARM later split the green line into light and dark green circuits: now, MPB staff also checks if the passenger's test result has been previously validated. If this is the case, they are assigned to the dark green path and can leave immediately, otherwise, they are assigned to the light green path, and just need to validate the test results with the IHA staff. Regarding blue circuit passengers, these will go to another section, where IHA staff will perform the test and attribute them a code. All passengers are then greeted once more by MPB staff, which provides them offers and souvenirs, such as an emblematic “banana da Madeira”, a strelitzia flower, traditional candies, a protective mask with the typical Madeira pattern or a water bottle, all to ensure a warm welcome. Finally, green circuit passengers can go enjoy the island, and blue circuit passengers just need to go to their accommodation and await their test results. This process is schematized in [Figure 2 - Passenger control system process diagram](#).

Within the airport, the MPB was also responsible for all scenic work, including audiovisual content, structures and signalization to specify each circuit and to offer guidance to passengers. These modifications include a giant screen and smaller TVs in the waiting line to keep passengers entertained and happy while they await their turn.

In the words of Nuno Vale, the collaboration between these entities was crucial to guarantee an operation that follows rigorous health and safety standards, while providing a true touristic experience, that would warmly welcome passengers.

3.4. The Solution, Under a Microscope

3.4.1. The Cost

The cost of this whole operation, from July 1st to October 30th was of roughly 20M€²¹. This amount, however, is believed to be justified by the entities involved, as it is an investment used to protect an entire region and to control a global pandemic. Just on the MPB's side, this investment is of almost 1M€. **Each test, by itself, costs roughly 30€**, without taking into account the cost of the health professionals involved and of the necessary infrastructure. Even by just multiplying this 30€ figure by the number of tests performed, we can quickly deduce that this process implies heavy costs, as from July 1st to October 20th, 88 thousand passenger

²¹ <https://www.publico.pt/2020/10/30/sociedade/noticia/madeira-mascaras-rua-partir-seis-anos-turistas-pagar-quartos-hotel-ficar-quarentena-1937316>

tests were made just on the ARM's airports²². This same data was corroborated with the help of MPB's financial assistant and through the IHA. This means that test costs were of approximately 2.6M€, even when excluding the labor and infrastructure involved, along with tests performed at the passenger's origin.

The final cost consideration to take into account is that, initially, if passengers were tested in the ARM and the result was positive, the government itself would incur the costs of the compulsory confinement in an accommodation establishment designated for this specific purpose. However, the government's goal is that these passengers will start paying for their compulsory confinement, at least partly, with the payment that was made to their original accommodation establishment upon booking going to the ARM's coffers²³.

3.4.2. Safety Considerations: Tests at the Origin and at the Destination

Pedro Ramos informed that, whenever possible, **the tests should be performed at the origin, as this is inherently safer for the whole region**. The MPB's director also states that testing at the origin is beneficial not only because of the increased safety, but because visitors should be completely stress-free while visiting in order to appreciate Madeira fully. While the ARM will provide the necessary treatment and accommodation to those who present a positive test, visitors want a touristic experience and confinement and treatment is certainly not one.

Testing at the origin is a slightly more troublesome process for the passengers, as they need to schedule an appointment in the 72 hours prior to their flight, however, they must also leave enough leeway to receive the test result before their disembarkation in Madeira. In order to make this process easier, the **ARM has established partnerships with 34 testing stations across continental Portugal**, including not only the cities near major airports such as Porto, Lisbon and Faro, but also others that might be more accessible by the passengers²⁴. In any of these stations, the tests are completely subsidized by the ARM and the visitors just need to present their citizen card, their national health service number and proof of payment of the trip to the ARM, such as an electronic ticket.

For additional in-depth safety considerations on possible origin testing complications, as well as the possibility of false-negatives and the lack of usage of contact tracing apps, please refer to [Section 8.3. Additional Safety Considerations](#).

²² <https://www.dnoticias.pt/2020/10/21/83423-madeira-realiza-2000-testes-por-dia-e-ja-processou-138671-amostras-desde-marco/>

²³ <https://www.publico.pt/2020/10/30/sociedade/noticia/madeira-mascaras-rua-partir-seis-anos-turistas-pagar-quartos-hotel-ficar-quarentena-1937316>

²⁴ <https://www.madeira.gov.pt/Governo-Regional-Madeira/ctl/Read/mid/4829/InformacaoId/66153/UnidadeOrganicaId/9/CatalogoId/0>

3.4.3. The Implementation

According to Diogo Silva, the MPB manager responsible for managing the airport partnerships and operations, the most challenging part of the implementation of the control system at the airport was to reach an operation that was **quick, efficient, and that guaranteed a good welcome experience**. The first few months of collaboration between the MPB, ANA and the IHA all required an adjustment process, as no process similar to this one had ever been implemented before, and neither had the three entities worked together simultaneously. Translating the ideas to the real world took small and iterative upgrades in order to ensure that everything worked as well as it is currently working. It was a matter of continuous adjustment over time, for example, it might seem simple to implement the aforementioned circuits, but they had to sequentially introduce upgrades in order to ensure a good experience, such as splitting the green circuit into two sub-circuits, increasing testing capacity, taking into account people with reduced mobility and providing them places where to rest, as well as entertaining the passengers through the TVs spread throughout the queue.

The initial phase of re-opening the airport was the most difficult, as the system had a sudden influx of passengers, with strong demand oscillations. There were no major difficulties in the number of tests available neither on the test result delivery timeframe, with the most challenging parts being at the very beginning, resulting in slightly higher wait times in situations such as when three flights would arrive at the same time and the system wasn't as robust, as was confirmed by both the MPB's and RHS's top management.

The logistics behind this process was deeply demanding, as the testing station network partnerships needed to be developed, and the stations themselves needed to be ready for spikes, as flights are usually more packed on special days, and there are major upsurges in test demand just before weekends and holidays. The origin test results needed to be ready within 72 hours and a bottleneck would be reached only on days such as Thursdays and Fridays. Eventually, all the entities involved adapted and this heavy operation management project became complete.

At the time, there was a tendency for passengers to book flights and accommodation with little-to-no antecedence, which placed an even higher strain on all those involved. This tendency still persists, albeit at a slightly lower level, and there are now communication channels in place to ensure that no bottlenecks are reached. For example, as of October, the health operation had already been informed of the number of flights booked for the New Year's and Christmas season and the expected passenger peak, in order to scale their operation accordingly.

The test station network was expanded according to the current needs and is currently sufficient to handle all of the expected flow, so there is no further expansion planned for the near future. If circumstances change however, it will be expanded to allow for extra capacity.

4. Tourism in Madeira, Post-pandemic

Tourism suffered a clear worldwide shock, with major consequences across all possible indicators, trends, consumer behavior, destinations and events. In this chapter, we will analyze the specific impact of COVID-19 in the ARM's tourism industry, how all of these factors changed, how they might recover and how consumers reacted.

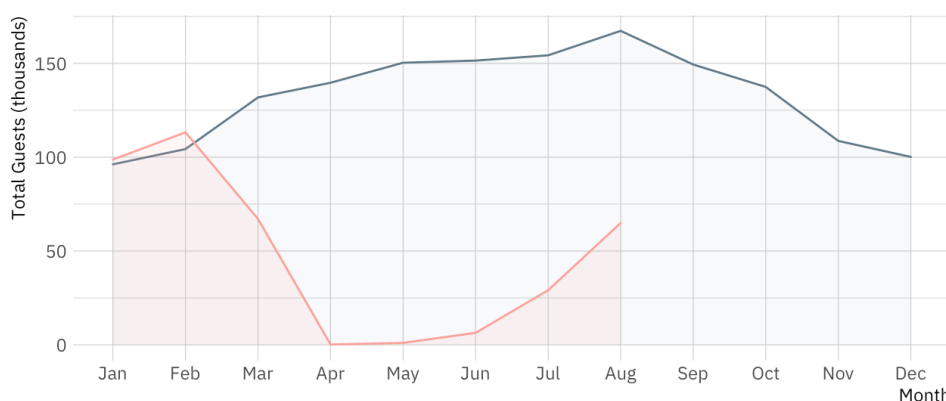
4.1. Key Performance Indicators, and how they changed

As is to be expected, the economic effects of a global pandemic are dire: Pedro Calado, the vice-president of the ARM, stated that the predicted impact in the region's economy will be of over one billion euros²⁵. So, how does this affect tourism in the ARM? Below we can find a brief analysis of the main indicators in the accommodation industry, comparing 2020's²⁶ results to those of the previous year. For the following figures, and for the remainder of this subsection, the year 2019 is represented in gray and 2020 in red.

- **Total Guests:** While the initial impact of the quarantine was significant, with a staggering 99.9% YoY decrease in guests in April. A strong recovery was seen in August, with the change from 2019 to 2020 being of a major, but more reasonable 61.2% decrease.

Total Guests in the ARM per Month

Comparison between 2019 and 2020



Source: Direção Regional de Estatística da Madeira, 2019 and 2020. Provisory data for August 2020

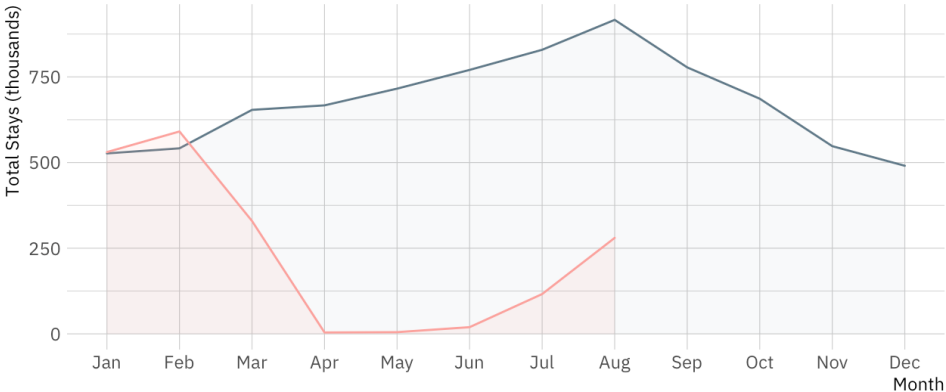
²⁵ <https://www.dinheirovivo.pt/economia/nacional/impacto-na-economia-da-madeira-e-superior-a-mil-milhoes-de-euros-12688362.html>

²⁶ As of the time of writing, the latest provisory data is of August 2020 and so this is the last month included in this analysis.

- **Total Stays:** This indicator faced a comparable evolution, with a 99.3% YoY decrease in April, which evolved to a similarly improved 69.4% YoY decrease in August. The relative higher decrease in this variable in August, when compared to the Total Guests variable implies that the average stay was also reduced due to this crisis, going from 5.5 in August 2019 to 4.3 in August 2020, which corresponds to a 21.2% decrease. Nonetheless, an increasing tendency in the average stay was also seen from June to August.

Total Stays in the ARM per Month

Comparison between 2019 and 2020

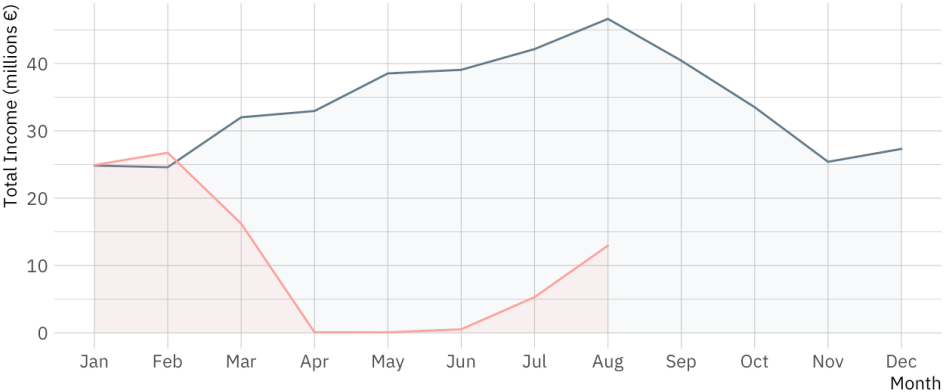


Source: Direção Regional de Estatística da Madeira, 2019 and 2020. Provisory data for August 2020

- **Total Income:** As is to be expected, this indicator’s evolution is aligned with that of the previous ones, with a decrease of 99.7% in April, and of 72.2% in August.

Total Income in the ARM per Month

Comparison between 2019 and 2020

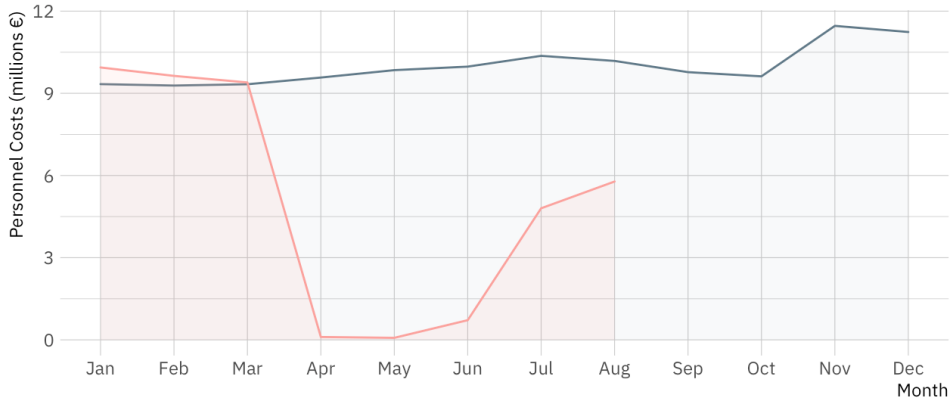


Source: Direção Regional de Estatística da Madeira, 2019 and 2020. Provisory data for August 2020

- **Personnel Costs:** Due to the mandatory quarantine and lay-offs these costs declined 98.9% in April 2020 when compared to April 2019, however they rose much quicker than the previous indicators, with the YoY decrease in August being of 43.2%. This implies that accommodation establishment’s profit margins suffered a decrease due to a higher ratio of costs to income.

Personnel Costs in the ARM per Month

Comparison between 2019 and 2020

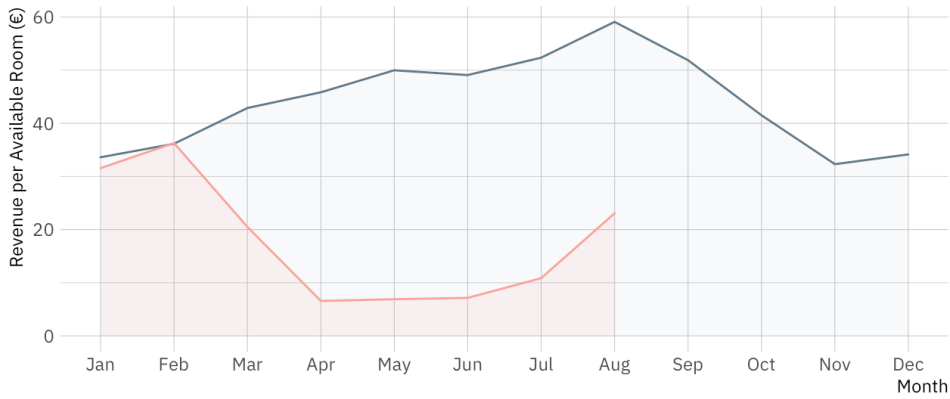


Source: Direção Regional de Estatística da Madeira, 2019 and 2020. Provisory data for August 2020

- **RevPAR:** The revenue per available room faced an 85.7% YoY drop in April, which was reduced to 61.0% in August. The fact that the RevPAR decreased less than the total income therefore represents the fact that not all accommodation establishments are open and consequently that the number of available rooms decreased at a higher rate.

Revenue per Available Room in the ARM per Month

Comparison between 2019 and 2020

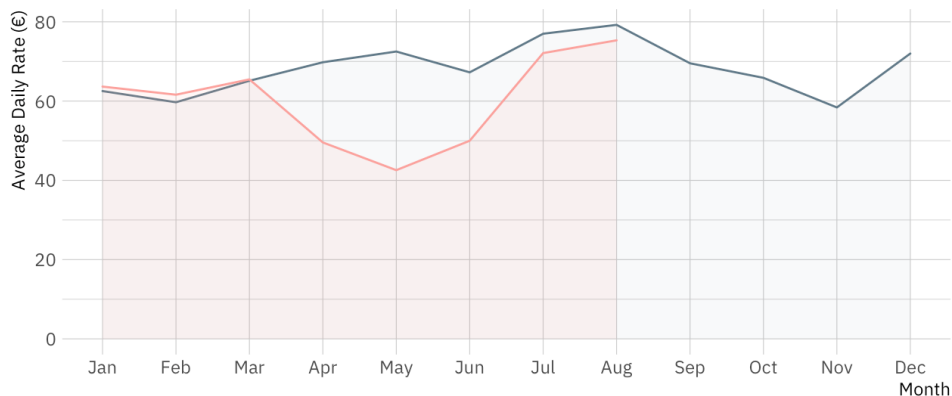


Source: Direção Regional de Estatística da Madeira, 2019 and 2020. Provisory data for August 2020

- **ADR:** While the demand for accommodation severely dropped, so did the offer. This factor, along with the necessary minimum rate due to the accommodation establishment's cost structure, meant that the ADR was, by far, the most stable of all indicators. Its highest YoY decrease was not in April, but in May, where it reached 41.3%, and in August this indicator was almost fully recovered, corresponding to a minimal 4.9% decrease.

Average Daily Rate in the ARM per Month

Comparison between 2019 and 2020



Source: Direção Regional de Estatística da Madeira, 2019 and 2020. Provisory data for August 2020

For a more comprehensive KPI analysis, [Section 8.4. Additional Post-Pandemic Indicators](#) can be consulted.

4.2. Tourist's Behavioral Change

As the previous section made clear, this pandemic has had a significant impact on tourism. MPB's director stated that, traditionally, a major part of Madeira's visitors was international, belonged to a higher age range and were very loyal to the ARM, with a high percentage of them being repeat customers. However, due to the pandemic, this profile has suffered significant changes, as older visitors are now more averse to travel as they are at higher risk of COVID-19 complications, and as visitors as a whole prefer to travel to closer destinations. He is also of the belief that most people still desire to travel, however, that their planning horizon is drastically reduced, from months or even a whole year before, to now being last minute. In order to counteract this tendency, travel operators have increasingly become more flexible, with some going as far as promising to refund cancellations and allowing rescheduling. The ARM itself has also put in place a countermeasure for this tendency, by

establishing an insurance plan in partnership with Bónus Seguros²⁷, that will cover repatriation costs in case of a positive test, along with medical costs.

Additionally, the MPB's executive director considers that demand has shifted toward **authentic, genuine and nature destinations**, that allow for sustainable tourism and for outdoor sports. This trend was already in place before the pandemic, however it has become exacerbated due to these new conditions, as tourists are now starting to prefer smaller destinations rather than those that are heavily massified. Madeira has seen a percentage increase in couples, families and, in general, younger tourists, which are searching for this kind of destinations.

Another major tendency of course, is the search for **safe destinations**. Health and safety policies are now heavily scrutinized, and customers expect nothing less than high standards regarding sanitation, social distancing and all COVID-19 preventive measures. In order to act on this, the ARM has launched the Madeira Safe to Discover badge, akin to Portugal's Clean & Safe guarantee, highlighting the business that are certified as fulfilling all mandated protocols. Additionally, MPB has used the Madeira Safe to Discover tagline to promote the ARM's touristic activities.

Finally, it is expected that while some of these changes will be structural and remain a major part of consumer's behavior for a significant time frame, others will, in general, face a gradual phasedown and lose intensity. An example of the former is travelers cautiously increasing the advance with which they book their flights and stays and eventually regaining a bit, but not all, of normalcy.

4.3. Reactions to the ARM's Solution

According to MPB executives, there were two major phases regarding Madeira's early implementation of COVID-19 measures. In a first stage, as they were one of the first destinations to close down and to implement testing, the overall reaction was quite negative amongst the tourism sector and many airlines, travel agencies and other establishments were shocked and heavily doubted this method, as they believed that no tourist would eventually want to subject themselves to a test in order to visit Madeira.

The second stage, however, was the complete opposite. All entities involved realized that these measures were indeed effective in counteracting the pandemic and they now understand that this was the correct path: as the ARM is now a COVID-19 Safe Destination, it

²⁷ Available at <https://portugaltravelinsurance.com>

is now much more attractive to tourism. In fact, some of these airlines and travel agencies now classify Madeira's approach as exemplary.

Different countries' tourists also reacted differently to Madeira's measures. Germans, for instance, were very receptive toward these changes, and flights from Germany quickly re-opened, with higher occupation rates. Britons, however, took relatively longer to understand the advantages of testing and to return to Madeira.

Furthermore, another example was given by Duarte Afonso, the MPB account executive for Portugal, stating that Portuguese passengers have higher rates of origin testing, as most of them feel uncomfortable knowing their test result only when already in the ARM, as well as due to the increased ease of being able to schedule a test for free within Madeira's testing station network.

Finally, the RSTC and MPB themselves reacted by adjusting Madeira's event schedule and trying to translate their spirit into a setting where all the social distancing and prevention measures could be taken. These alterations are summarized in [Section 8.5. Additional Event Updates](#).

5. Literature Review – Research Note

This section intends to provide a brief overview of the theoretical frameworks used in the following teaching note. It will therefore focus on topics relating to dynamic and complex environments and the need for the corresponding business strategy adaptations, as well as introduce the necessary translation of business management literature into the public sector.

5.1. Industry Key Success Factors

KSFs are the factors within an industry that influence the firm's ability to outperform its rivals, being therefore mandated by the environment (Sá & Hambrick, 1989). These pre-requisites for success can be understood through an analysis of demand and an analysis of the competition, answering therefore, respectively, to the questions “What do consumers want?” as well as “What does the firm need to fulfill in order to survive competition?” (Grant, 2016).

5.2. SWOT Analysis

This analysis allows for a quick but general evaluation of a firm's internal and external environment, by organizing relevant factors according to their positive or negative influence on the firm's strategy. The acronym stands for Strengths, Weaknesses, Opportunities and Threats, with the former two categories relating, respectively, to the positive and negative internal factors, and the latter relating to the positive and negative external factors. It is one of the highest-ranked strategic tools and has been applied to the not-for-profit and government sectors previously (Helms & Nixon, 2010).

Additionally, according to J. Barney, (1991), this framework relates, in a sense, the following Resource-Based Model with the Environmental Models of Competitive Advantage, as the former corresponds to the firm's internal environment (SW), and the latter to the external (OT). This is advantageous to this particular case study, as environmental models such as Porter's Five Forces cannot be fully translated to the world of government without major and definition-altering changes, whereas the SWOT analysis allows for a general view of this external environment, without the same drawbacks.

5.3. The Resource-Based View (RBV) and the VRIO Framework

While the external environment of a firm is, without a doubt, relevant to understand its performance, the importance of the internal environment cannot be understated. The RBV focuses on the firm's inner characteristics as the basis of competitive advantage (J. Barney, 1991), therefore changing the assumptions of resource mobility and homogeneity that were present on Porter's Five Forces model, and opening up the possibility of a firm-specific competitive advantage (Wernerfelt, 1984, 1989).

This view can be analyzed by the VRIO framework, which serves to assess the importance of each resource (Grant, 2016), through a sequential checklist, as the resource will be deemed as insufficient for sustained competitive advantage if any of the following characteristics are missing, with the process immediately halting as soon as a gap is found.

First, in order to establish a competitive advantage, the resource must have **Value** (that is, it must be useful to exploit an opportunity or to contain a threat) and **Rarity** (as if this resource was common, it would instead be a source of competitive parity).

Secondly, for this competitive advantage to be sustainable, the resource must have a low **Imitability** (i.e., competitors must incur a significant cost to obtain this resource, either by acquiring it or by replicating it).

Finally, in order to appropriate the aforementioned competitive advantage, the firm must have an **Organization** that allows the full potential of the resource to be used (J. B. Barney, 1995).

5.4. Dynamic Capabilities

The way in which businesses adapt their strategies when faced with major environmental changes is a matter that is being heavily discussed in management literature. Teece et al., (1997), introduced the concept of Dynamic Capabilities (DC), as a complementary and special capability belonging to the RBV, which was traditionally seen as unusable in shifting market conditions due to its stativity (Priem & Butler, 2001).

The original definition by Teece et al., (1997), portrays DCs as *“The firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments”*. Since then, management literature has focused on this concept, and researchers have suggested multiple conceptualizations for DCs, which are divergent on many aspects such as their creation mechanism, their purpose and even the context in which they can be applied.

However, certain mindsets are shared amongst papers (Barreto, 2010). For example, while Winter (2003); Zahra et al. (2006); Zollo & Winter (2002), used different terminology and assumptions, they shared the belief that the specific role of DCs is of a “higher-order”, as they were the capabilities/routines that were used to re-organize the remaining “ordinary” capabilities/routines. Teece, (2007), also shares this guiding light that DCs can be decomposed into the capability of reconfiguring resources, adding at the same time other capacities in the mix, resulting in the following scheme: “sensing (and shaping) opportunities and threats”, “seizing opportunities” and “managing threats and reconfiguration”. This is akin to Edwards (2001) which proposed that DCs are a multidimensional construct, involving separate but associated traits.

In an effort to unify this field of study and to develop a new, more enveloping and definite concept, taking into account the main views of the previous literature, the following aggregate multidimensional construct was proposed:

“A dynamic capability is the firm’s potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions, and to change its resource base.” (Barreto, 2010).

5.5. Understanding these components on the path to Competitive Advantage

J. Barney, (1991); Peteraf & Barney, (2003), define the concept of Competitive Advantage as what occurs when a firm implements a value-creation strategy, that is not simultaneously implemented neither by its current or potential competitors, so that therefore, this firm creates more economic value than a marginal competitor. Taking this and the above definitions into account, it is clearly seen that the topics of RBV, VRIO, Dynamic Capabilities all share similar assumptions and concepts and can therefore be understood as complementary paths that define the achievement of Competitive Advantage. Cardeal (2012) states that as DCs are the most appropriate connections of resources (Kay, 2010), they are therefore the intermediary outputs which turn resources and lower-level capabilities into the final output, serving as the organization that is needed to exploit the full potential of the resource. This view therefore intrinsically binds DCs and VRIO’s “O” as the same concept. Finally, the focus and basis for Competitive Advantage should be on VRI capabilities and not on VRIO resources, as the former’s increased complexity reinforces their inimitability (Cardeal, 2012).

5.6. Stakeholders and the Power/Interest Matrix

As defined by Freeman (1984) a stakeholder is any individual or group, that can be affected by the achievement of an organization's goals, or, alternatively, that can affect the organization's performance. Agle et al. (1999); Mitchell et al. (1997) state that a stakeholder's key attributes include factors such as power (its ability to influence the final outcome according to its desires), legitimacy (that its actions are appropriate within a set of socially accepted norms and within its legal rights) and urgency (which includes the stakeholder's time sensitivity to the issue, as well as its criticality, due to his claim's importance or to his relationship with the organization). Additionally, it should be noted that the way in which an organization responds to a crisis can significantly impact the stakeholder's perception of the organization (Bundy et al., 2017).

In order to better understand the most relevant stakeholders and their priorities, these can be mapped into a Stakeholder Power/Interest Matrix (or grid, which allows for a more granular positioning) which classifies them not only in relation to their ability to influence outcomes but also in how likely they are to accept/oppose a certain strategy. The stakeholder's quadrant in this matrix can help managers decide the most appropriate stakeholder prioritization and engagement strategies (Johnson et al., 2008; Kamann, 2007).

Finally, stakeholder literature regarding public decisions such as policy creation states that three major steps should be taken in this process with the first being understanding the decision's context, the second specifying the final objectives and the third identifying the alternatives that fulfill these objectives (Gregory & Keeney, 1994).

5.7. Bridging the Public and Private Sector through the Balanced Scorecard

While many strategy concepts can be shared and adapted between private and public administration, fully bridging these worlds requires an adaptation effort, which is still underway (Alford & O'Flynn, 2009; Wauters, 2017), as the goal of a manager in the public sector is not to provide economic value to its shareholders, as is the case in its private counterpart, but to create public (social) value, at a reduced cost (Moore, 1995).

Kaplan and Norton's Balanced Scorecard suggests 4 main performance measures, which represent drivers of long-term shareholder value, to evaluate a company's success. These

measures stem from the financial, customer, learning and growth and internal business processes perspectives (Norton & Kaplan, 1992).

These perspectives are connected, as the employee's knowledge and skills (learning and growth) are needed to develop strategic capabilities (internal business processes) which lead to value creation for the market (customer) and, consequently, to higher shareholder value (financial). A strategy map is a visual framework for these same perspectives and the relationships amongst them (Norton & Kaplan, 2000).

This framework therefore provided nonprofit and public sector enterprises an alternative way to measure their performance, without the sole focus being their finances, as their effectiveness must be measured instead by the benefits they provide to their constituents. Additional changes were then made to make it increasingly more suitable, such as changing the ultimate goal of their strategy map to be their social impact and mission, as well as expanding the customer perspective by placing constituents and resource suppliers at the top of the same map (Kaplan, 2009).

6. Teaching Note

The main goal of this case is to guide students in their path to applying strategic management skills in real-world scenarios. As the COVID-19 pandemic itself proved, managers must easily adapt to a wide range of conditions, and therefore, this case study focuses not only on bridging business administration concepts with public administration, but also on dealing with very limited data and information and being able to make sound strategic choices in a rapidly changing environment.

This case should be used in class, where students will have access to all of its information and the guiding questions that should lead their analysis. This section is therefore meant only for the teacher's use and to outline possible approaches to the case's analysis. These expected answers are generic and will, most certainly, differ from some students' approaches, which is intended, as the very nature of this case provides grounds for heavy discussion amongst students. This discussion is encouraged, as the uncertainty and methods involved should make this case highly interactive.

Finally, as this case was developed from September to December 2020, it is anchored in the information available at the time and therefore new data, new measures and new managerial principles will bring new ways to approach it in the future.

6.1. Synopsis

This case study focuses on the ARM, an archipelago that heavily relies on tourism, with it being responsible for roughly a quarter of the region's GDP. Due to the COVID-19 pandemic, this sector suffered major consequences and the ARM went as far as temporarily closing its borders in order to protect the safety of its citizens, however, its re-opening was always on the cards. In order to ensure the well-being of its population at both a health and economic level, it decided to pursue a new passenger control system, which required mandatory PCR testing. This led to an unlikely collaboration between the tourism and health organizations, new platforms, new infrastructures and a new positioning, as well as to major strategic challenges that had to be overcome in a limited time frame. The case details all of these measures and processes, as well as their implementation.

6.2. Teaching Objectives

First, students will have to develop a SWOT analysis to gather an overall view of the main factors in the case, as well as provide strategy recommendations according to these. Then, they will have to understand the cost structure of a new measure and extrapolate from very limited data to try and analyze its validity, recommending once more a specific course of action. Afterwards, students will focus on understanding R&C, VRIO and competitive advantage in the context of the case and see how environmental changes might lead to new KSFs, which in turn will cause a need for R&C re-organization. The following objective is to understand the DCs required for this restructuring. Finally, students will dive into the stakeholder perspective, focusing on their role and relevance in this process.

6.3. Session Plan

This case should be allotted 80 minutes within a practical class. The suggested approach is the following:

Students should be made aware that they have to read the case before class and understand the data available, factors and frameworks involved, however, they should not be aware of any questions, neither prepare any answers.

In order to foster cooperation and interaction, while mimicking the conditions the ARM faced, the students should be split into groups of 3 to 4 elements, according to class size, and have a limited time frame to understand each question and develop each answer. This will stimulate the need to prioritize and sort information, as well as ensuring the maximum of discussion and triggering adaptability.

At the beginning of the class the [introduction video](#)²⁸, which contains video excerpts of interviews realized by this dissertation's author for the purpose of this case study, should be played, in order for students to fully immerse themselves in the case environment. The suggested timeline is the following:

²⁸ Available at: <https://youtu.be/I0gx-afzKuE> and https://drive.google.com/file/d/1gJQ6P61azBFREWYtytWmyYW2kwsS_lj2. The video can also be accessed through the QR code in Figure 14 - QR Code (left) and video thumbnail (right) for the "Generating Public Value While Navigating a Crisis" introduction video.

Video Presentation		10 minutes
Question 1	Group Work	10 minutes
	Class Discussion	5 minutes
Question 2	Group Work	10 minutes
	Class Discussion	5 minutes
Question 3	Group Work	10 minutes
	Class Discussion	5 minutes
Question 4	Group Work	5 minutes
	Class Discussion	5 minutes
Question 5	Group Work	10 minutes
	Class Discussion	5 minutes

Table 1 - Session timeline and activity distribution

6.4. Guiding Questions and Expected Answers

The following questions apply the theoretical framework presented above to the case, therefore helping students transpose their learnings about business administration to adjacent domains and to promote out-of-the-box thinking. The goal of this case study is to ensure that students are able to adapt their theoretical education to unforeseen scenarios and settings, such as the public administration challenges caused by a pandemic.

1 – Gather a summarized view of the main internal and external factors that might positively and/or negatively impact the ARM’s tourism landscape. Provide brief strategy recommendations that the MPB should take into account when adapting to these new external factors.

Internal Factors

- Strengths

- **Geographic position** (due to its proximity and easy accessibility to a great number of markets)

- **Strong nature component, including varied landscapes** (Madeira's forests are recognized in UNESCO's World Heritage list; additionally, it offers both a beach and mountain environment in close proximity)
 - **Year-long moderate climate** (which means seasonality effects can be avoided)
 - **Passenger control system** (as it has no land borders, its COVID-19 control system is effective, as user friendly as possible, as well as rare amongst tourism destinations)
 - **Low number of COVID-19 cases** (the above factor, along with its COVID-19 cases per capita being low, make it safer than other destinations)
 - **"Madeira Safe to Discover" badge** (all companies in the tourism sector can become certified with this badge, which ensures the public that they comply with all of the recommended disinfection and distancing procedures)
 - **Strong hospitality tradition** (the ARM's hotels, restaurants, services and their respective personnel are used to dealing with tourists, being friendly and welcoming)
 - **Authenticity** (Madeira has managed to retain its character and avoided becoming a standardized and over-crowded highly commercialized destination)
- **Weaknesses**
- **Heavy control measures** (the passenger control system, as well as the early adoption of measures such as mandatory mask usage outside can also be a weakness, as some tourists might not be willing to undergo PCR testing nor agree with the implemented policies)
 - **No land accessibility** (despite the ARM being close to a high number of markets, it can only be accessed by air or by sea, at a time where a higher number of passengers would feel more comfortable travelling by car)

External Factors

- **Opportunities**
- **Vicinity travels:** Tourists now have a higher risk aversion and therefore they prefer to travel smaller distances, limiting themselves to mostly short and medium-haul flights. Madeira, due to its aforementioned geographic

position, can capitalize on this tendency. As evidenced at the beginning of the case, the MPB segments its target markets in three tiers, including priority, developing and diversification markets, with the first two groups being consistently European and representing roughly 91.7% of their passengers, and the latter consisting mostly of American markets, such as the USA, Canada and Brazil. The MPB's original goals were to start targeting its diversification markets more intensively in 2020, however, this no longer makes sense, and the real opportunity lies in regaining the numbers it had in its priority markets, as well as targeting and increasing its foothold on its European developing markets, which are closer and therefore more likely to take an interest in visiting. This tendency to avoid longer travels can already be seen in the ARM's data: Portugal, being the closest major client of Madeira, has increased its weight within its tourism sector, moving from representing 24.6% of guests in August of 2019 to 61.0% in August of 2020. This weight increase occurred due to the massive drop in foreign, more distant, guests and not due to an increase in Portuguese passengers, which was largely unaffected, as this number only dropped 3.6% in August when compared to 2019. Therefore, as of now, the number one goal of the MPB should be (and is) to protect the ARM's traditional markets, regain its usual consumers from Germany, UK and France and bet on other proximity markets.

- **Trend toward sustainable, authentic and nature tourism:** This trend's relevance is growing even further due to the pandemic and it very closely matches Madeira's strengths. The MPB should therefore underline these features heavily in its promotion efforts in order to improve its foothold on this segment and use it as a complement on its path to restarting the ARM's tourism sector.
- **Tourist profile diversification:** As mentioned above, the pandemic changed the demographic of the ARM's tourists, providing a higher importance to younger customers. This, along with the above opportunity, should be leveraged by the MPB in order to increase loyalty amongst this new target, and therefore rejuvenate its tourist base.
- **Safe Destination positioning:** Consumers now deeply care about the safety measures put into place. Madeira has won many awards, some of which

placing it amongst the top COVID-19 safe destinations in the world. This safety guarantee is deeply sought out, not only by tourists, but also by those in the tourism trade, as companies feel safer establishing routes, stays and vacation packages to destinations that they believe will not close, neither due to a higher number of cases, neither due to confinement, which leads to an increase in new partnership opportunities. Additionally, due to Madeira having this crisis under control, these new partnerships can also come from countries, airlines and operators that wouldn't initially be expected and wouldn't have the ARM under its radar before.

Finally, this image is also enhanced by Madeira's Safe to Discover Badge. Therefore, these factors, along with its temperature winter climate, give it an ideal positioning for Christmas and New Year's vacations for 2020, especially as there currently exists a shortage of winter vacation offers. Therefore, this COVID-19 Safe image can also help reduce the ARM's tourism seasonality.

- **Threats**

- **Short booking horizon:** Consumers now plan their vacations with the shortest antecedence possible in order to ensure that no rescheduling will be needed, as they are afraid that destinations might close, that their origin point might enter into a new quarantine and even that they can become infected themselves. This demand uncertainty causes heavy pressure on all touristic providers and despite being counteracted by the measures presented above, it requires all affected businesses to be more agile and ready for sudden demand surges. The MPB could use past data, as well as the most relevant market's pandemic status, to try and predict possible future surges.
- **Possible new waves in major tourism destinations:** Madeira's tourism sector is, of course, dependent on its tourists, which originate from places where the ARM has no control. New COVID-19 waves in those countries, as well as mandatory confinements, can quickly result in thousands of cancellations, which the ARM cannot avoid, but only try to predict. A possible solution is to guide these passengers toward re-scheduling at a later time, so their investment in Madeira is not lost.

- **Lower willingness to travel:** Travelers are now more risk-averse, and measures such as mandatory confinements have also reduced their trust on the safety of going abroad and of exploring new places. This should be combated in the way the MPB is already acting, by leveraging ARM’s safety as a promotion mechanism, going as far as using the tagline “*Madeira: Safe to Discover*”.
- **Short appropriation time frame:** The above opportunities need to be exploited in record time, as the arrival of a vaccine, or a general improvement in COVID-19 indicators, can quickly render them useless. Of course, this same improvement would, most probably, benefit the ARM more than the above opportunities, however, the MPB should act fast, using the way the region handled this situation to increase awareness in target markets, even if this awareness will only come into play at a later date.
- **Unemployment and market conditions:** Madeira’s tourism offer is suffering heavily due to this crisis. Establishments are facing heavy losses, layoffs and some are even temporarily shut down. If the conditions don’t improve in the future, hotels, restaurants, travel agencies and tourist attractions might have to close, reducing the ARM’s future attractiveness as a holiday destination. The most logical strategy to tackle this problem is to recoup as much tourism as soon as possible, which is already what the MPB is trying to do. Additionally, attributing subsidies and support packages to the most affected businesses might bring additional help.

2 – Private and Public managers often have to rely on limited data to make major strategic decisions amongst uncertainty.

First, outline the major cost considerations implied by this passenger control system, as well as the indicators that might reflect its benefits, and use the most relevant data within the case to analyze if these costs can be recouped. After this analysis, issue your own recommendation: Should the ARM have implemented this passenger control system?

The major costs that stem from the passenger control system can be divided into the two following categories:

Fixed Costs	Variable Costs
<ul style="list-style-type: none"> - Implementation of the testing center, including containers, computers and medical equipment - MPB's investment in signage, decoration and merchandising - MPB personnel registration tablets - MadeiraSafe Platform development and server costs 	<ul style="list-style-type: none"> - Test cost (roughly 30€/passenger) <ul style="list-style-type: none"> - Medical personnel salaries - MPB airport personnel salaries - Disposable medical protection equipment, such as face masks, face shields and gloves

Table 2 - Passenger control system's cost structure

It is known that the sum of all of these costs totaled 20M€ from when the airport first opened to the end of October. However, how can the ARM achieve benefits from the passenger control system, if it fully subsidizes the testing, charging no extra fee? Well, as the passenger control system increases the likelihood of tourists, it is consequently responsible for the additional tax revenues created by these. However, a key part of the answer lies in the fact that these benefits don't need to be solely financial due to the ARM's public nature: its target is not to provide economic value to shareholders, but to provide social value to its citizens.

Therefore, indicators such as the following can be used to summarize the main benefits:

- the number of COVID-19 infected patients and related deaths avoided, as well as the savings due to having a smaller strain on its hospitals;
- the added safety ARM's inhabitants have, which in turn leads to less strict confinement measures and a reduced drop on spending, as well as layoffs;
- the number of extra passengers that have chosen and will choose Madeira as a destination due to its Safe Destination positioning, as well as the extra income that these passengers provide to the ARM and its industries.

As a final measure of social value is not easily quantifiable, it is greatly debated within the ARM if subsidizing the tests is worthwhile for the state and even economically sustainable.

Consequently, an alternative option to rationalize this investment in a data-driven way, even while ignoring the health and safety side of the equation, is to try and ensure that the ARM

is not facing losses per each passenger that it attracts, and that thus, it still makes sense for it to promote itself as a tourism destination.

Hence, the goal is to understand if the state's revenue per passenger is, at least equal, to its major variable cost of 30€ per individual test. This revenue can then be computed quickly, with relatively safe assumptions: Taking only into account the accommodation industry, its transactions in the ARM are taxed at 5%, the Average Daily Rate for 2019 was of 68.83€, and the average stay was of 5.11 days. This means that, just from the hotel stay, the government is able to recoup 17.57€, which is over half of the variable test cost, without even taking into account the aforementioned snowball effect of tourism on restaurants, stores and transportation.

While it can be argued that tourists would still come to Madeira if they had to pay their own tests out-of-pocket, it is clear that the free and readily available testing stations made possible by the government increase the probability of passengers arriving, while also reducing the possibility of tourists trying to bypass the test safety procedures in order to save money. It is also possible to try to extend this cost recouping estimation even further by taking different assumptions: as of 2016, the average expense per day of non-resident tourists was of 123,94€. From the year 2010, we can gather data tourist expense per category from 2010 from which we can conclude that a reduced VAT (5%) was applied to 52.74% of this daily expense, an intermediate VAT (12%) to 25.67%, and a regular VAT (22%) to the remaining 21.59%. Assuming that this expense distribution is still accurate for the year 2020, and using 2019's average stay, we get that **each passenger, over his total stay, is responsible for paying 66.25€ in taxes, which is, at least, more than sufficient to cover the cost of his PCR test.** Therefore, we can conclude, with a moderate degree of confidence, that the government is not facing losses with each passenger that enters the ARM. However, even ignoring these tax calculations, paying for the passenger's tests still makes financial sense. By boosting the number of tourists, it leads to a higher level of revenue for tourism-dependent businesses, that would otherwise be closed or facing severe losses. With this measure, the ARM is helping protect its businesses, saving jobs (once more, roughly 15% of the population is employed in tourism-related activities), and preventing the need for future stimulus packages or austerity.

Due to all of the above factors, our recommendation is that the current passenger control system was indeed the right solution, as its variable financial costs are theoretically recouped, with a strong indication that the initial investment will also be covered by the additional tourism-related economic and employment protection. Therefore, the economy's snowball effect and the increased safety dramatically increase public value and can help overcome any other potential financial losses. It can also be argued that this initial investment would always

be necessary, as even if the ARM charged for origin testing, it would still need to implement infrastructure for it to take place. Additionally, by making these tests accessible free of charge for tourists, they are testing a higher number of tourists, diluting their fixed initial costs, that they would still have to support in the other case.

However, a negative view can still be justified and correct, as students can also argue that the ARM subsidizing tests does not sufficiently increase the arrival of new passengers to warrant this expense, therefore meaning that a similar system could be implemented with similar results, and, therefore, similar public value creation, at much lower costs.

3 – Analyze the ARM’s resources and capabilities in the tourism sector before this crisis. Show how the new external environment led to a new KSF and therefore to necessary organizational changes, which correspondingly brought new resources and capabilities.

Capability	Corresponding Resources		
Ability to satisfy multiple segments, with different needs and price points (VRI)	Landscape diversity	Beaches	V
		World Heritage Forests	VRI
		Mountains	V
	Wide range of touristic offers	High supply of hotels, restaurants, rent-a-cars,	V
		High supply of tourism activities exclusive to the ARM	VRI
		Variety of available sports	VR
		Varied event schedule	V
	Year-round attractiveness (V)	Full event schedule	V
Moderate climate		V	
Various activities and sports available in each season		V	
Destination authenticity (VRI)	Strong nature and environmental component (aforementioned landscape diversity)		VRI
	Gastronomy and wine		VRI
	Culture		VRI
	Hospitality tradition		V
	International recognition		V

Table 3 - ARM's tourism original R&C and respective classification

In the above table and for the remainder of this question, the following abbreviations are used:
 V – Valuable, R – Rare, I – Inimitable.

As we can therefore conclude, Madeira's resources result in 3 major capabilities: the ability to satisfy multiple segments, year-round attractiveness and destination authenticity. Of these, year-round attractiveness is the only one that does not fulfill the VRI criteria, as it can be found in its competitors and is therefore not rare, which consequently halts this analysis, placing this resource only as valuable.

The remaining capabilities all work towards the ARM's sustainable comparative advantage in tourism, as their high degree of complexity makes them even harder to copy. Additionally, all of these are highly linked, as, for example, Madeira's unique combination of tourism activities is, in a sense, a resource which stems from its lower-level landscape diversity resource category, as it is only made possible by the fact that the ARM has so many different landscapes, in such close proximity. For example, it would of course be possible to have mountain, forest and beach tours in some of Madeira's competitors, but none are as close together as in the ARM's case, and none have the traditional components of activities such as Madeira's toboggan rides, which, for example, benefit in turn from the ARM's culture resource.

As of 2020 however, the environment deeply changed due to COVID-19 and now, as previously discussed, consumer behavior is no longer the same: passengers are now much more averse to travel, and they need extra reassurance of the safety of their destinations. Once more, now is the time to remember the ARM's true nature: its customers are not only its passengers but all of its citizens, which rely on the state for protection, safety and health care. This major environmental shock means that what consumers want is now different: passengers want a safe destination and citizens want a safe home. A new KSF emerged: the ARM must guarantee the safety and wellbeing of all who are present. This KSF meant that resources that the state already possessed in other areas had to be re-organized in new ways, as now the health and tourism sectors must be intrinsically linked to ensure the success and the competitive advantage of each one, as well as of the ARM as a whole.

In the table below, we can see the newly created "Ability to ensure COVID-19 safety" capability and the resources which it requires. This capability does not meet the VRI criteria, as it can be easily copied by any other region which desires to implement strict passenger controls and therefore it provides a comparative advantage that is not sustainable. Nonetheless, due to this new KSF, this capability was necessary for the success of the ARM as a touristic destination and for the safety of the state.

New Capability		New/Re-allocated Resources	
Ability to ensure COVID-19 safety (VR)	Passenger Control System	PCR Test Entry Requirement System	V
		Origin Testing Facility Partnerships	V
		Own Arrival Testing Facilities	VR
		Thermal Triage System	V
		MadeiraSafe Passenger Registration Platform	VR
		Healthcare Staff	VR
		MPB Staff	VR
	Preventive Measures	Mandatory mask usage	V
		Mandatory social distancing	V

Table 4 - ARM's tourism new R&C and respective classification

In conclusion, while Madeira's original resources and capabilities provided it with a sustainable competitive advantage and while their intrinsic value was not affected by the current pandemic, the ARM needed to adapt and introduce this new capability in its touristic system, as all its previous resources would be naught if the passenger's new safety requirements were not fulfilled.

4 – The U.S. military developed the term VUCA (Volatile, Uncertain, Complex and Ambiguous) to describe environments that changed not only extensively, but quickly and unpredictably. The current pandemic clearly encompasses all of these criteria, therefore, what higher-order capabilities did the ARM need to have in order to detect, understand and adapt to this new environment? Finally, take a step back and see the problem from another perspective: is this adaptation a re-organization or a collaboration?

In order to endure this major shock, the ARM had to make an extensive use of its dynamic capabilities, at three different levels:

First, in order to understand that a re-organization of its lower-level resources and capabilities was necessary, it needed to be able to sense opportunities and threats, in an encompassing, broad and governmental level. The ARM had this capability, provided by processes that were in place with the goal of identifying possible incoming environmental

changes. In this case specifically, these processes were targeted at health threats and established not only in a regional and national, but in a worldwide manner: as the ARM is, of course, part of Portugal, it is therefore part of the WHO, whose purpose, amongst others, is to watch out for possible health threats. As mentioned in the case, the WHO first declared an international public health emergency as of January 30th, 2020, and this was the ARM's first major and worrying warning sign. In fact, Madeira's president spoke about the possible economic impacts of COVID-19 as soon as March 5th, even before it had been classified as a worldwide pandemic. Additionally, as the case build-up was gradual in Europe, spreading later to continental Portugal and even later to Madeira, all the relevant institutions were aware of the upcoming possibilities much earlier than the first case in the ARM.

Second, now that the ARM had identified a major problem, it had to act on it, using its DC of making timely and, in this case, public-oriented decisions. The first major decision occurred when it closed its borders, on the 15th of March, this decision was very prudent and well-timed, as it occurred even before the quarantine was implemented at a national level, on March 18th. Madeira knew that the sectors that would be hit the hardest by the pandemic would be health (due to the increased needs of medical staff, equipment, rooms and) and tourism (which the case shows is responsible for at least a quarter of the ARM's GDP, even without accounting for its snowball effects on the remaining industries). It knew as well that what its citizens wanted was safety, and, at the same time, economic prosperity. It then devised its re-opening strategy, linking these two sectors in the way seen in the case, in order for them to complement each other.

Third, now that the decision had been made it was time to put it into practice, with the ARM relying on its DC of changing its resource base. This involved not only acquiring and developing new strategic assets, such as the necessary testing infrastructure at the airport, PCR tests, the MadeiraSafe platform, MPB test-related signage and entertainment systems, and establishing the origin testing facilities' partnerships, but also a transformation of existing assets, as for example reassigning health staff to perform tests at the airport's new facilities. These new asset combinations are value-enhancing amongst each other as citizens become safer due to passengers being tested, which in turn contributes to less imported cases, resulting in less consequent overall cases, leading to a safer destination, which, in turn, attracts more tourists.

Finally, the other point that should be taken into account when analyzing this same adaptation is that while the IHA and MPB are different entities, they all fall within the same umbrella that is the ARM, and therefore this cooperation could be seen both as a transformation

of government resources or as a cooperation (or, in a sense, even an alliance) between different public entities, who now share the same goal and need each other to ensure mutual survival, given that the environment is highly uncertain and implementation speed is a key factor. In a certain way, the implementation process described in the case is a three-way trading arrangement between the IHA, who provides the health staff, equipment and technical know-how, the MPB, who provides the signage, entertainment and welcoming side of the passenger control system, and lastly, ANA Airports, who provides the airport space necessary for this project, as these three organizations combine very dissimilar, however mutually valuable resources, to achieve a common goal.

5 – In order to delve deeper into this process and to gather a more comprehensive understanding of the role of everyone involved, introduce, schematize and classify the ARM’s version of customers, as well as the ARM’s most relevant organizations. Briefly describe how the government structured its policy making decision in order to ensure wide satisfaction with the final result.

Due to the ARM’s governmental nature and as discussed above, its concept of customers is different from that of a business organization, including stakeholders such as taxpayers and citizens. The government pools resources from all taxpayers and re-allocates them to policies with the goal of increasing overall social welfare, which means that taxpayers will pay for all the policies and measures put into place, even if they don’t benefit directly from them. Therefore, a key point for governmental policy is to ensure that the wider public agrees to be taxed to obtain an overall socially satisfactory result. In the context of this case study, individual citizens and taxpayers consider this result to be COVID-19 safety. This same context also implies the presence of another stakeholder type that is akin to traditional consumers, which are, of course, tourists. While they play a role in this process that is very different from that of citizens, they are still very much dependent on the final outcomes.

The most relevant additional stakeholders are identified in the table in the following page, and classified accordingly to their key attributes of power, legitimacy and urgency, in the levels of Low (L), Medium (M) or High (H).

Stakeholder	Power	Legitimacy	Urgency
Citizens/Taxpayers	M	H	H
Tourists	L	M	M
Local Businesses	M	H	H
Media	M	L	L
Civil servants	M	H	M
Public Health Staff	M	H	H
Individuals with political power	H	H	H
Health Organizations	H	H	H
RSTC	H	H	M
MPB	M	H	M
Local Government	H	H	H
National Government	H	H	H
ANA Airports	L	H	H

Table 5 - Passenger control system's stakeholders key attribute classification

Alternatively, these stakeholders can be organized visually, in a Power/Interest grid, as can be seen below:

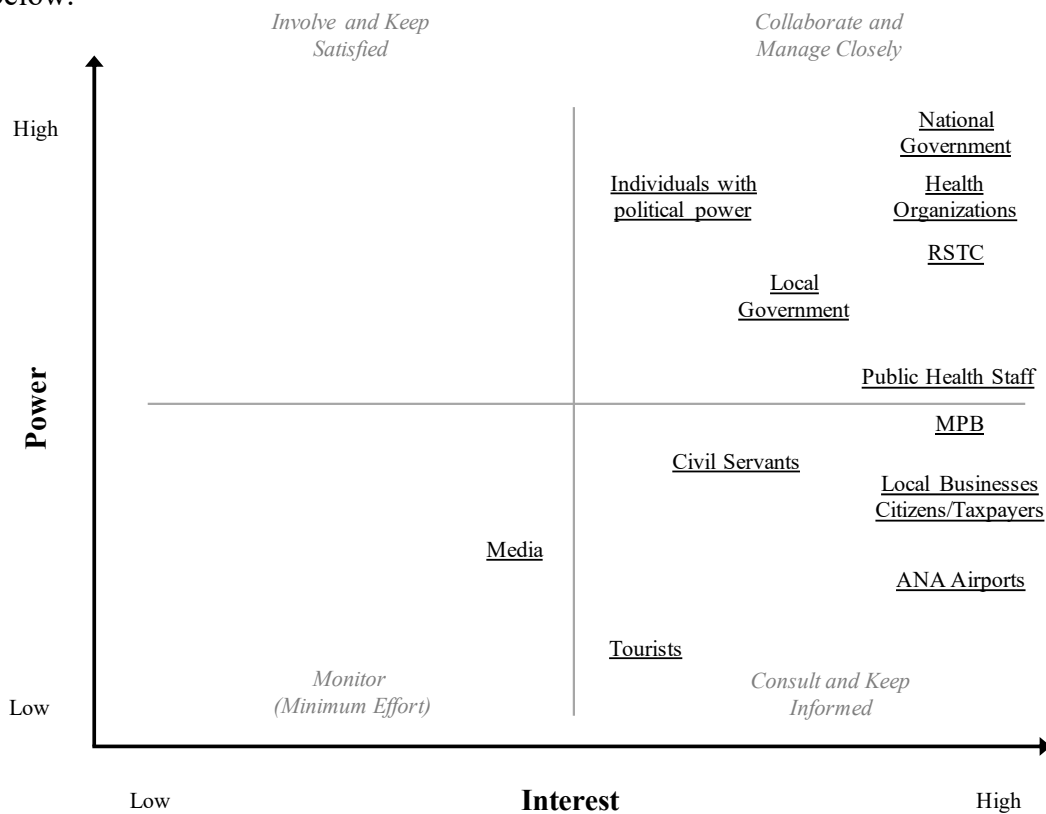


Figure 1 – Passenger control system's stakeholder Power/Interest Grid

This layout allows us to understand that the ARM's decision was made in collaboration with the individual/organizational stakeholders in the top-right quadrant, but always consulting those in the bottom-right quadrant, which, despite not having a direct decision ability, still heavily influence the final result.

It should also be mentioned that the government will direct decisions so that these fulfill the above criterion of wide public acceptance, as the current governmental administration/party not only exists to serve the public but as it also has the selfish goal of having a high approval rating to increase its chances of being re-elected. As we know, the stakeholders' perception of any organization, including of a government, can be deeply impacted by a crisis, either in a positive or in a negative sense. Therefore, keeping the citizens' endorsement in this matter is of high strategic importance for the elected party.

Finally, we should now analyze if the ARM fulfilled the three major policy creation steps, with regards to stakeholder management. First, when structuring its decision, the government made sure to understand all the possible threats that COVID-19 could cause, both from a health and from an economic perspective, completing therefore the first step of gaining context and environment awareness. The second step was also fulfilled, as seen in the case, as the ARM set the final objective of implementing a balance between safety and economic prosperity. Lastly, the third step of identifying possible and legitimate alternatives was also present, as the ARM studied multiple options such as proposing an EU-wide PCR testing agreement and even implementing a passenger control system similar to the one currently adopted but without state subsidization. All of these steps involved multiple stakeholders, in order to ensure that every viewpoint was considered and that a fair compromise was found.

7. Conclusion

In sum, this case study's goal is to challenge students to apply abstract and theoretical concepts in a very real setting. Due to the complexity of the cases' situation, as well as its distance from the private sector, students will have to master all the concepts applied and learn how to adapt to unforeseen situations.

This crisis presented Madeira with the major challenge of finding a nearly impossible balance of safety and economic prosperity, which not only forced its government to make major decisions with limited data, but also to take a deep look at all of its entities and resources in order to reconfigure them in a successful way. The RSTC and MPB had to join forces with the RHS and IHA, an extremely unlikely combination that showcased the governments DCs, and led to new R&C, which helped Madeira sustain its competitive advantage in the tourism industry, while guaranteeing that it fulfilled its other KSFs, such as the safety of its most relevant stakeholders: citizens. The success of this passenger control system can not only dictate the success of the ARM's industries and of its COVID-19 containment process, but also the success of the ruling party's re-election.

As in every scientific endeavor, this case's limitations should also be noted. These are related to, without a doubt, time. At the time of writing, all of these processes and measures were rapidly changing. Since this process started, multiple pieces of information in this thesis had to undergo iterative revisions to keep up with the current factors and legislation, such as: the split of the passenger control systems' green circuit, the transfer of confinement costs, the arrival of double testing and much more. Additionally, the lag of statistical information meant that, for example, August's KPIs were only obtained late in the process, in the middle of November. The remaining information in this case was updated as of the beginning of the same month. These same constraints mean that no conclusions can be predicted about the medium- and long-term impact of these measures. Therefore, it is quite possible that at the time of reading, this system might be considered obsolete, with rapid tests and vaccines having fundamentally changed its purpose and efficacy. Due to this, all analysis should be made as of September-November 2020, at a time where all of these measures were cutting edge.

Finally, to conclude, my personal opinion as the author of this case is that its encompassing nature led me to a better understanding of adaptation, and of how, in strategy, creativity goes hand-in-hand with data and structure.

My hope is that it transmits this same feeling to all of its readers.

8. Appendixes

8.1. Additional Pre-Pandemic Performance Indicator Analysis

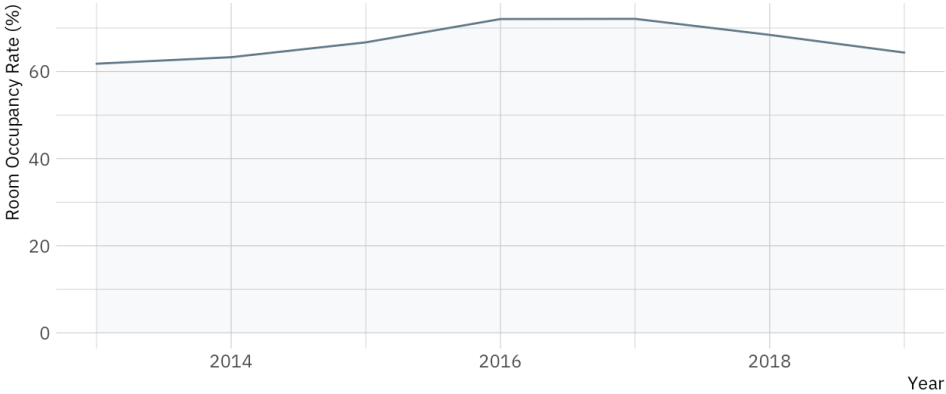
This section serves as a complement to [Section 2.2.](#), including not only more KPIs, but also brief conclusions that can be taken by the combined analysis of multiple indicators:

- **Room Occupancy Rate (%):** Represents the relationship between the number of occupied and available rooms in the reference period, computed by the formula below. This value was of 64.3% in 2019, representing a 4.1% increase from 2013, the oldest year with sufficient data for this measure.

$$ROR = \frac{\text{Number of rooms used in the reference period}}{\text{Number of available rooms} / \text{Number of days in the reference period}}$$

Room Occupancy Rate in the ARM per Year

Evolution from 2013 to 2019

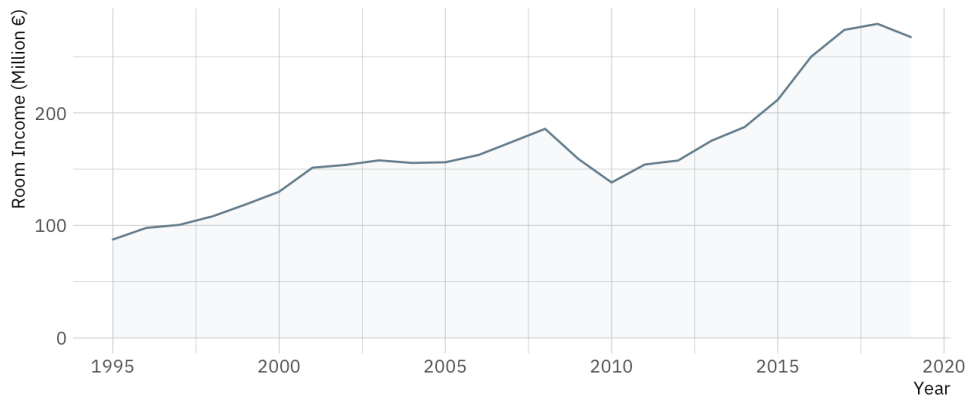


Source: Direção Regional de Estatística da Madeira

- **Room Income (€):** The value charged for all of the stays in all accommodation establishments, without VAT. These totaled 267.5M€, representing a 193.8% increase from 1995.

Room Income in the ARM per Year

Evolution from 1995 to 2019

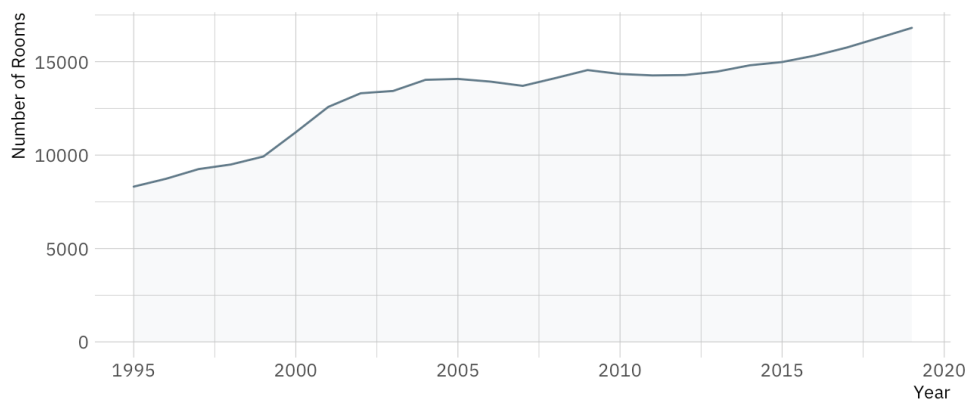


Source: Direção Regional de Estatística da Madeira

- **Total Number of Rooms:** The total number of available rooms in accommodation establishments. This value faced a 102.3% increase from 1995, resulting in almost 17k available rooms in 2019.

Rooms in the ARM per Year

Evolution from 1995 to 2019

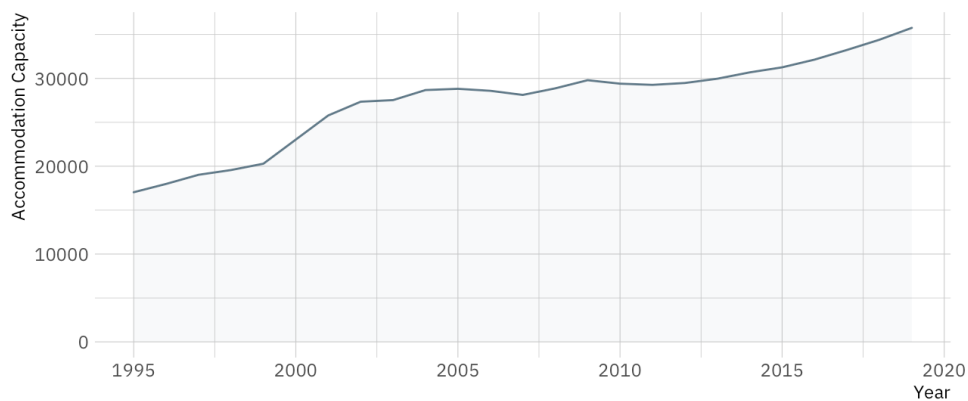


Source: Direção Regional de Estatística da Madeira

- **Accommodation Capacity:** Maximum number of individuals that accommodation establishments can accommodate in a given period. This value is determined by the number of existing beds, considering a double-sized bed as two beds, and excluding closed establishments. This capacity was, as of 2019, of 35.7k individuals, representing a 109.9% increase from 1995.

Accommodation Capacity in the ARM per Year

Evolution from 1995 to 2019



Source: Direção Regional de Estatística da Madeira

From a broad analysis of these and [Section 2.2](#)'s KPI combinations, the following secondary conclusions can be taken:

- While there has been a significant increase in guests, the average stay has diminished, due to the comparatively smaller slope of the increase in stays.
- The number of accommodation establishments has had almost the double of the percentual increase than the accommodation capacity. This is probably partly explained by the inclusion of smaller rural and housing tourism accommodations that joined the dataset in 2012, and therefore no conclusion can be made about changes in the presence of larger vs. smaller scale establishments.
- The accommodation capacity has increased more than the number of stays, which contributes, along with the lower average stay, to a lower bed occupancy rate.
- Despite this lower bed occupancy rate, the RevPAR has also grown, which explains why new establishments continued opening. Both the supply and the demand have increased, however the higher increase in demand for stays by the guests when

compared to the lower increase in accommodation supply means that the supply-demand equilibrium continued shifting toward a higher price.

- Service personnel has not grown as much as the number of establishments, which can be explained by multiple factors, such as each employee taking longer shifts and working more or a smaller need for manual labor due to the advancement of technology (e.g., use of online booking platforms, laundry machines and dishwashers).
- Total income has grown significantly more than the number of stays, which is in accordance with the limited data available regarding the average daily rate.
- Total income has grown slightly more than room income, which probably demonstrates a very slight increase in the use of accommodation establishment services other than accommodation itself, or an increase in the price of these services.

8.2. Additional Solution Details, Exemptions and Scenarios

This section complements [3.2. The Solution, in Detail](#), by providing a more exhaustive view of all the relevant exemptions and possible scenarios that can be derived from the passenger control system. Continuing therefore with 3.2.'s numbering of details:

Fifth, **children** and pre-adolescents are exempt from testing, unless they:

- a) are over 12 years old and if their test is recommended by the health authorities;
- b) present any COVID-19 symptom criteria;
- c) have family members or travel companions that are suspected cases;
- d) fit in any other testing requirement implemented by the health authorities.

Sixth, if the passenger's **flight is diverted from the Madeira to the Porto Santo airport**, they should remain in compulsory confinement in the airport, until the aerial boarding to Madeira. If the passengers desire to remain in Porto Santo, or to travel to Madeira by sea, and they have not completed the test in the origin, they must undergo PCR testing in the Porto Santo airport, and remain in confinement until obtaining a negative test result.

Seventh, passengers who are already in the Madeira or Porto Santo island can freely travel across the islands, as the circulation between these is exempt from any health status control by the RHS.

Eight, if the **passenger refuses to be tested**, he must choose between the following options:

- a) Voluntarily for the period of 14 days, or if his stay is of less than 14 days, quarantine during his whole stay;
- b) Return to his origin country, or any other destination outside the ARM, complying with confinement within his home or a hospitality establishment until the time of his flight. In this case, accommodation costs are imputed to the passenger.

Ninth, if the passenger's PCR test result is **positive**, he must comply with mandatory, and, if necessary, even compulsory confinement of 14 days, either in his own home, in a health center or in a hospitality establishment, upon the decision of the competent health authorities.

Tenth, in the case of repatriation, the ARM will help and collaborate with all diplomatic authorities and touristic operators involved. The resulting expenses should be covered by the passenger's travel insurance.

The eleventh and final detail, that had already been summarized above, is that all passengers, along with ARM's population, must **comply with the preventive COVID-19 measures** at all times, which are the following:

- Mandatory mask usage, except when:
 - a) The individual is less than 6 years old;
 - b) The individual has any disability (as it can make the positioning and removal of the mask difficult without assistance);
 - c) Practicing sports (including any physical or leisure activity that involves physical effort, recreational sports activities in forest spaces and designated pedestrian routes);
 - d) In beaches, bathing areas or complexes, or when in accesses to the sea.
- Social distancing, maintaining 2 meters in between people and avoiding crowds
- Frequent hand sanitation
- Respiratory etiquette

Additionally, regarding the ARM's accessibility by sea, it was only re-opened with limitations starting from October 16th, following a different set of protocols and legislative measures, which are equivalent and derived from the ones above, with passengers that disembark having to present a negative test result before being able to fully enjoy the island.²⁹

²⁹ <http://www.apram.pt/site/index.php/en/16-news>; <https://www.dnoticias.pt/2020/10/24/105556-227-dias-depois-o-porto-do-funchal-volta-a-receber-navio-de-cruzeiro/#>; <https://joram.madeira.gov.pt/joram/1serie/Ano%20de%202020/1Serie-195-2020-10-16sup4.pdf>

8.3. Additional Safety Considerations

8.3.1. Origin Testing Complications

While [Section 3.4.2. Safety Considerations: Tests at the Origin and at the Destination](#) presents the advantages of origin testing, a skeptical approach could be taken. Although destination testing might bring infected visitors to the ARM, they should, theoretically, cause no harm, as they should undergo recommended confinement and practice mask usage and social distancing. Therefore, this could mean that the ARM doubts the sense of safety and honesty of passengers for these measures, while believing that the same passengers would accurately report their health status in the aforementioned MadeiraSafe platform.

Additionally, origin testing poses another problem. For example, if we were to suppose that a passenger contracted the virus 7 days prior to his flight. If he were to be tested 4 days later, 3 days prior to the flight and within the required testing window, he would have a 67% of presenting a false-negative³⁰. However, if he were to be tested at the arrival, this probability would be reduced to only roughly 20%. Arrival testing could therefore reduce false-negatives across the board.

Finally, there is another point that could be made. As there is no social distancing on the plane, the effectiveness of origin testing could be reduced. If a passenger that already has a negative test sits next to an untested passenger, he is facing unnecessary risk. It could be argued that passengers on a plane should be seated according to their testing status, which is not the case, in order to ensure a higher safety level. However, it is known that this risk is minimal, with estimates showing a probability of only 1 in 4300 of contagion³¹. These probabilities are so scarce since three things must fail for contagion to happen, as there must be an infected and contagious passenger, the tested passenger must be close enough to the original passengers and masks must not be effective. The last clause, however, can quickly be broken, as food and beverages can be consumed on the plane, and therefore passengers can remove their masks. The ARM still tries to slightly mitigate this risk, by asking passengers on the MadeiraSafe platform to disclose their airplane seats.

³⁰ <https://medical.mit.edu/covid-19-updates/2020/07/when-should-i-be-tested>

³¹ <https://edition.cnn.com/travel/article/odds-catching-covid-19-flight-wellness-scen/index.html>

8.3.2. False-negatives, Double-testing and Symptom Tracking

While this process has been heavily thought out, it is still impossible to make it completely COVID-19 proof, unless Madeira were to completely exile itself from the world or an insurmountable amount of resources was devoted to this process.

First, we have to consider that the PCR test, at a basic level, serves to detect evidence of SARS-CoV-2 genetic material in each passenger's upper throat and nose. No test is perfect, and it is completely possible for the individual to be infected, but with trace amounts of the virus that are so infinitesimal that the test would return a negative result, therefore being a false-negative. As reported in MIT Medical, **if an individual is tested on the day he was infected, the probability of a false-negative is of 100%**³². This chance drops to 67% for the fourth day after the infection, to 38% on the day when the individual starts showing symptoms, and to 20% even three days after symptom onset. While these results depend on the sensitivity of the specific PCR test being used, they are nonetheless worrisome, as they could mean that a person that was tested at the origin might have been infected by the virus even 7 days before boarding the flight to Madeira, with a 67% probability of the test being a false-negative.

So, how can this be prevented? The compromise that errs toward caution, is to perform additional PCR tests on the same passenger. Madeira's competitor, Azores, employs this strategy, requiring additional tests if the passenger stays for 7 or more days³³. These tests should be performed on the 5th and 13th day after the realization of the first test, and the passengers themselves should contact the Azorean health authority nearest to them to schedule the test. Additionally, the Azores requires a prophylactic 14-day confinement, no matter where the first test was performed. While this method is still safer than a single PCR test, it is clearly much more invasive, bothersome and uninviting to tourists, along with representing, of course, much higher costs for the government.

Madeira's compromise implies higher risk. Instead of requiring additional tests, they ask the recent passengers to answer a daily epidemiological survey in the MadeiraSafe platform, in which passengers should report their temperature, as well as select any symptoms they might have that fit COVID-19's criteria. **If they do have any COVID-19 symptomatology, the passengers will be flagged as risk passengers, which will trigger a response protocol, where the RHS will contact them in order to perform another test.** This method might have an advantage regarding the Azorean one, as it collects passenger information more regularly

³² <https://medical.mit.edu/covid-19-updates/2020/07/when-should-i-be-tested>

³³ <https://covid19.azores.gov.pt/wp-content/uploads/2020/05/Informação-aos-passageiros-a-desembarcar-na-Região-Autónoma-dos-Açores.pdf>

and in a shorter time frame, leading to possible cases being reported and diagnosed sooner. However, it has two major shortcomings: First, it relies on the common sense and honesty of each passenger, and, as can be deduced by multiple passengers infringing the 12-hour recommended confinement, it cannot be fully trusted. Second, patients can be asymptomatic. According to the World Health Organization, 80% of cases are asymptomatic³⁴, and other studies imply that 20% of asymptomatic patients are still contagious³⁵. Passengers that are asymptomatic, could very well receive a false-negative result and unknowingly spread the virus, with no way of the source being detected.

Madeira, however, seems to be well-aware of these possibilities and of the risk that it is taking. As cases in continental Portugal have risen, the ARM has been gradually raising its precautions, and, on September 24th³⁶, it was announced that health, education, social and civil protection will have to undergo a second test, between the fifth and seventh days following their disembarkation in the ARM's airports. On November 4th³⁷, it was announced that this measure was extended to resident university students that are studying abroad, and, additionally, that these students should remain in confinement until they receive a negative result on the second test. This last announcement, according to the ARM's president, will help "guarantee the safety margins in the pandemic management" as a large inflow of students, and respective family/friend meetings, are expected due to the upcoming Christmas season.

Many passengers, however, still prefer to be tested upon arrival. In order to further incentivize origin testing and promote safety, offering a touristic experience of the same value as the test to pre-tested passengers is also being considered. It should also be noted that Madeira is the only one of its competitors that allows for Arrival Testing amongst its competitors. Additionally, amongst these, Madeira and the Azores are the only regions that have origin testing facility partnerships and are therefore the only ones covering the tests' costs.

8.3.3. MadeiraSafe and Contact Tracing Apps

Portugal has recently developed its own contact tracing app, which has been available since September 1st³⁸. Its goal is to alert its users if they have had high-risk exposure to someone

³⁴ https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200306-sitrep-46-covid-19.pdf?sfvrsn=96b04adf_4#:~:text=For%20COVID%2D19%2C,infections%2C%20requiring%20ventilation.

³⁵ <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003346>;

<https://www.healthline.com/health-news/20-percent-of-people-with-covid-19-are-asymptomatic-but-can-spread-the-disease>

³⁶ https://www.im-madeira.pt/regiao/ver/105082/Profissionais_de_varias_areas_terao_de_efetuar_o_teste_a_covid-19_entre_o_quinto_e_o_setimo_dias_apos_o_desembarque_na_Regiao

³⁷ <https://jornaleconomico.sapo.pt/noticias/estudantes-que-regressem-a-madeira-para-passar-o-natal-vaio-fazer-segundo-teste-entre-o-quinto-e-o-setimo-dia-659340>

³⁸ <https://www.inesctec.pt/en/news/stayaway-covid-available-for-download#about>

that is infected. This application has caused a major debate due to the possibility of its usage being made mandatory³⁹, however, its use is voluntary and free. STAYAWAY COVID, as well as its international counterparts, rely on the user's smartphones emitting random Bluetooth Low Energy identifiers, and gathering those of other smartphones around them. If one of the apps' users later becomes infected with SARS-CoV-2, he should upload in his app a code, provided to him by his National Health System doctor upon a positive test result. The app will then notify users that were in contact with the infected user for more than 15 minutes and at a distance of less than 2 meters⁴⁰. These notification criteria can be adjusted and were set according to the health authorities' guidelines. The technology behind the app is state-of-the-art, despite claims being made about its lack of efficiency. As of October 17th, the app had been downloaded 2M times and 38 thousand cases had been detected since its implementation, however, only 730 codes were generated⁴¹, with the app's usefulness being significantly hindered by the lack of codes being generated and introduced.

The ARM's government, however, stated that it would not implement the STAYAWAY COVID app, as its own MadeiraSafe solution has been in use for several months and has monitored thousands of people. While this approach might seem reasonable at first glance, it has been clearly established by now that both applications do not serve the same purpose. Their only similarity is that they are prevention tools. MadeiraSafe has no digital contact tracing functionality built-in, and only serves to monitor possible cases that might develop, as it is simply a traveler registration platform. While the limited use of the national app does mean it is less useful than it could be, it is still valuable, and **Madeira would be more protected if it chose to use both apps in tandem: using MadeiraSafe to detect infected individuals as soon as possible and using STAYAWAY COVID to determine those that were near those infected individuals**, while they were unknowingly contagious. The main motive that could explain not adopting the national app is that the data record system is different across continental Portugal and the ARM. However, this was also the case for Azores, Madeira's national competitor, which made the necessary adaptations promptly and now uses the national app⁴².

³⁹ <https://www.publico.pt/2020/10/19/politica/noticia/governo-suspende-proposta-uso-obrigatorio-app-stayaway-covid-mascaras-1935897>

⁴⁰ <https://stayawaycovid.pt/frequently-asked-questions/>

⁴¹ <https://www.publico.pt/2020/10/17/tecnologia/noticia/stayaway-covid-apos-38-mil-casos-gerados- apenas-730-codigos-infectados-1935607>

⁴² <https://observador.pt/2020/09/02/nova-app-da-covid-nao-nasceu-para-todos-madeira-ainda-esta-fora-e-aco- res- resolveu-a-ultima/>

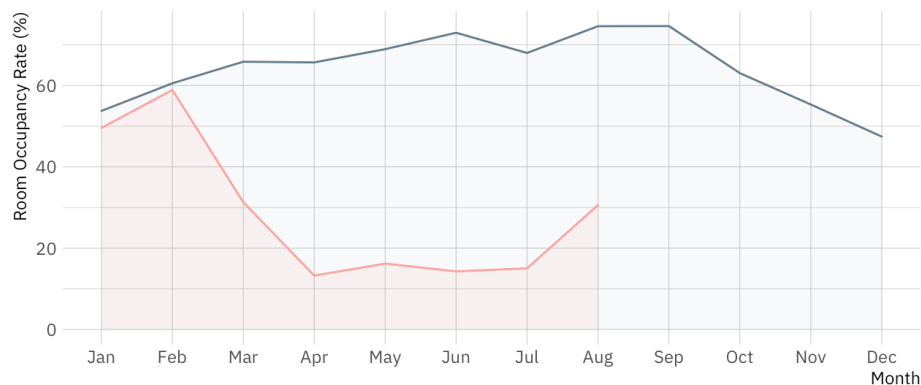
8.4. Additional Post-Pandemic Performance Indicators

Complementing therefore the analysis present in [Section 4.1. Key Performance Indicators, and how they changed](#), the following KPIs can also be taken into account. As before, the gray line represents the year of 2019 and the red line 2020.

- **Room Occupancy Rate:** This indicator faced a lighter 79.8% YoY decrease in April, which consequently narrowed in August, resulting in a 59.0% equivalent reduction.

Room Occupancy Rate in the ARM per Month

Comparison between 2019 and 2020

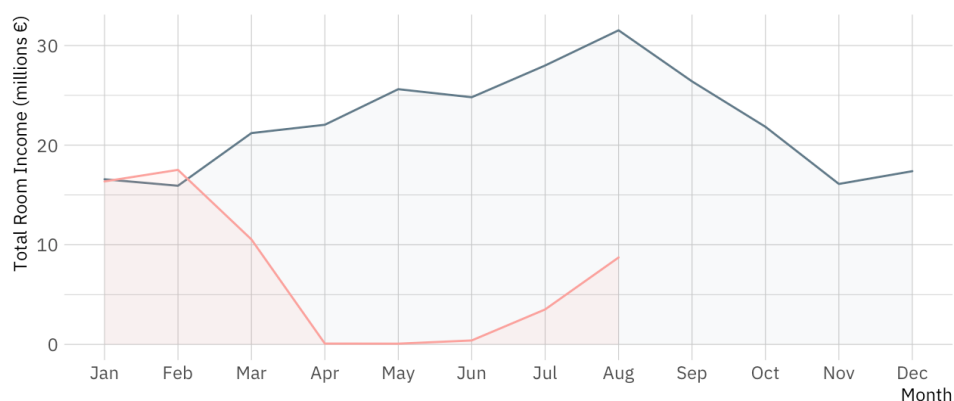


Source: Direção Regional de Estatística da Madeira, 2019 and 2020. Provisory data for August 2020

- **Total Room Income:** As is to be expected, this indicator's evolution is aligned with that of the previous ones, having faced a 99.6% decrease in April 2019 when compared to the previous year, which lessened to 72.3% in August.

Total Room Income in the ARM per Month

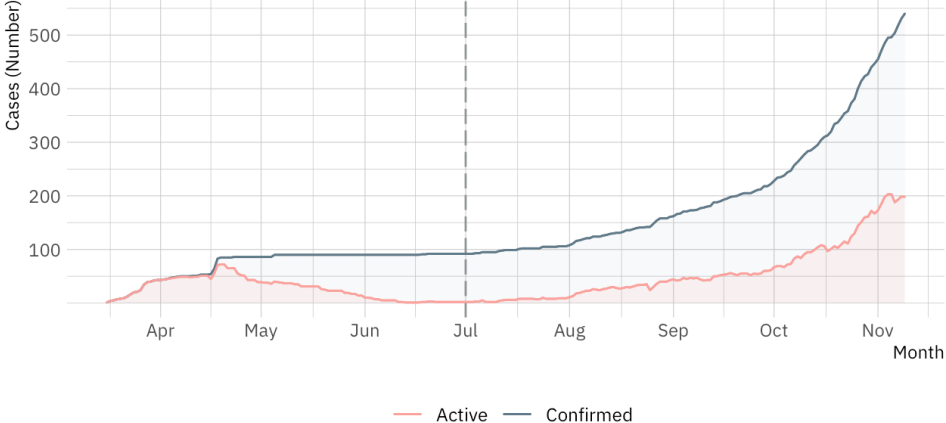
Comparison between 2019 and 2020



Source: Direção Regional de Estatística da Madeira, 2019 and 2020. Provisory data for August 2020

Finally, a new indicator that might be relevant is the ARM’s case number: These were mostly stagnated since the beginning of May, when the airport was still conditioned. The airport then re-opened on July 1st, which is represented by the dotted line in the graph below. Since then, there has been a steady increase in COVID-19 cases. This data set ends on November 19th, when there were 540 total cases, a roughly 487% increase from the 92 cases on the 1st of July.

COVID-19 Case Evolution in the ARM



Source: Instituto da Administração da Saúde - IPRAM.

8.5. Additional Event Updates

As introduced in [Section 4.3. Reactions to the ARM’s Solution](#), the RSTC and MPB also had to react by updating their event schedule by making it appropriate to the new conditions. This section will then focus on these updates.

First of all, traditionally, people measured an event’s success by their attendance, and the higher, the better. However, with COVID-19, this is no longer the case, as the due precautions make it necessary to maintain social distancing. Madeira’s Flower Festival, which is traditionally held in May, was postponed to September and joined with the Wine Festival. These festivals now required a ticket and were held in a defined area, in order to be more controlled and to ensure social distancing.

Promotion events, including fairs and roadshows that were to be held in Madeira were mostly cancelled, resulting in a big fall in investment, therefore a new amended budget was developed and approved in the general assembly. This investment was channeled to other activities, such as helping airlines, touristic operators and travel agencies.

Christmas will be more controlled, as there is a long-standing tradition of people meeting in the streets and eating in pop-up stands. While the goal is to maintain the spirit of the season, social distancing measures will be added. The Madeiran Christmas spirit is very typical and important to the region, however, it is not well-known internationally, therefore the MPB also has the long-term goal of increasing the international visibility of this season in Madeira.

Regarding the New Year's Celebrations, which are the most well-known Madeiran event, their essence will continue, with the illumination, fireworks and essence remaining the same, however their organization will be much more controlled in order to guarantee that no COVID-19 infection cluster will occur. Prevention measures are a part of the new normal, which implies a change in the format of most celebration events and initiatives, no matter where they are held in restaurants, hotels or any other establishment. Typically, hotels would sell tickets to rooftop events to see the fireworks to the general public, however, this year this format has been changed, and hotels can only allow people that are within the hotel itself.

9. Exhibits

	Sources	Number	Examples
Interviews	MPB Executives	3	Executive Director, Country Account Manager, Airport and Partnerships Manager
	RHS Executives	1	Regional Health and Civil Protection Secretary
	MPB Airport Staff	8	MadeiraSafe Platform Triage personnel, Helpers, Greeters, Assistants
	IHA/RHS Medical Airport Staff	6	Nurses that administered PCR tests and/or verified PCR test results
	Airport Travelers	9	Tourists from continental Portugal, Tourists from Europe, ARM Residents
Written Communication	RSTC and MPB Executives	4	Regional Tourism and Culture Secretary, Regional Tourism Director, RSTC Chief of Staff, MPB Financial Assistant
	Government Personnel	1	Vice President of the ARM’s Legislative Assembly
Direct Observations	Airport and Airport Testing Center Visits and Guided Tour	>15	7 airport visits, including a guided tour with security clearance, focused on areas such as: Testing Center, Containers, Support, Thermal Triage, MadeiraSafe Passenger Triage, Arrivals and Departures.
	Origin Testing Partner Facility Visits	3	Testing Center
	Reports and Data	>20	Tourist profile reports, MPB/SRTC strategy reports, Airport traffic reports, Legislation, Monthly/Yearly Tourism reports and data (DREM), Regional specialization strategy report, Yearly event guides, ARM’s Municipal Chamber of Commerce and Industry strategy report, Tourism satisfaction indicators report, Press releases, Press interviews

Table 6 - Case study information sources

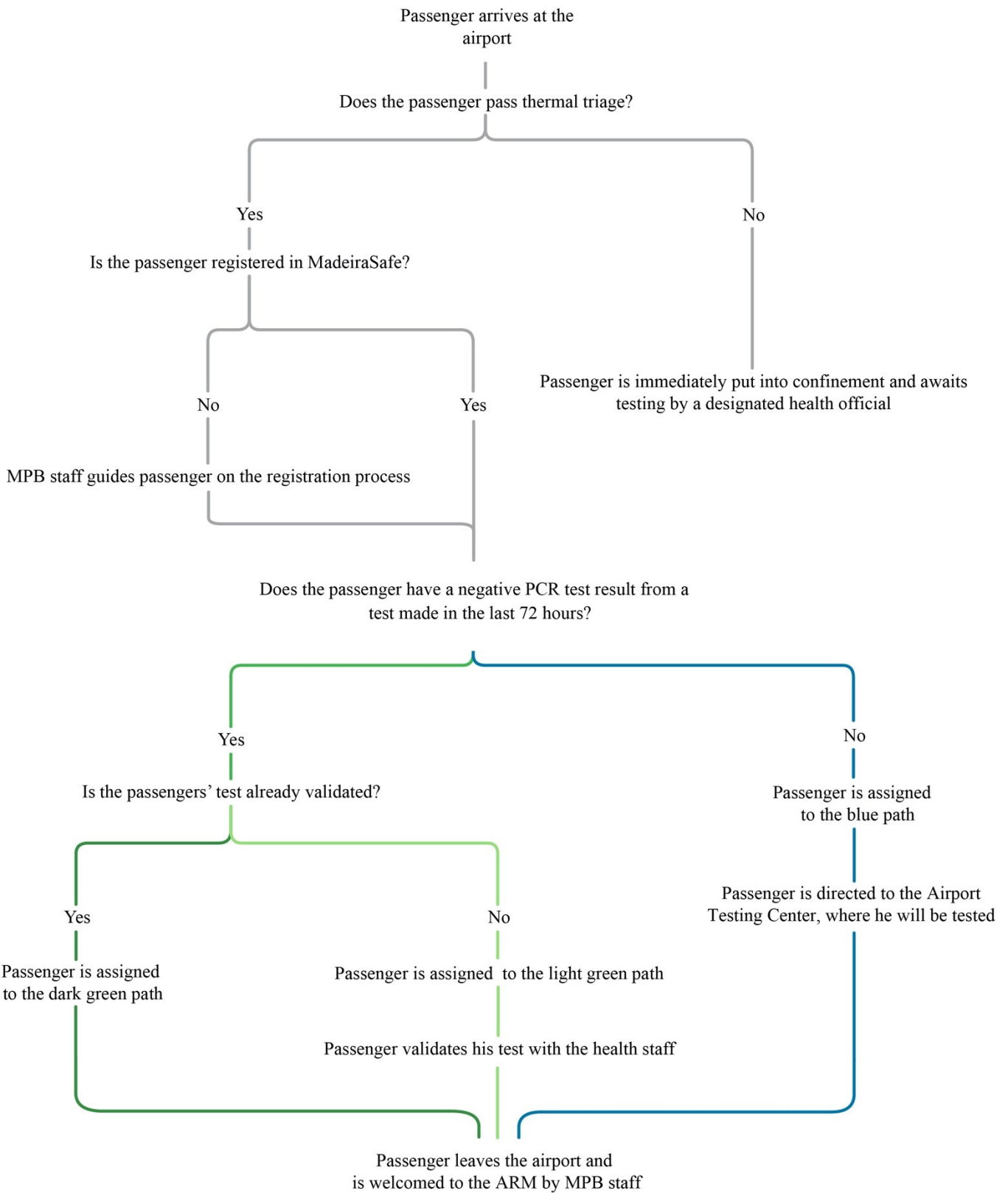


Figure 2 - Passenger control system process diagram, as described in [Section 3.3](#)

Year	Average tourist expense in the ARM per passenger per day
2010	100.5€
2013	116.27€
2016	123.94€

Table 7 - Evolution of the daily average tourism expense in the ARM per passenger⁴³

Area	Applicable VAT (Approximation)	Expense
Accommodation	Reduced	35.3€
Food	Intermediate	22.2€
Car Rental	Reduced	12.7€
Fuel	Reduced	2.6€
Transportation	Reduced	2.4€
Tours	Intermediate	3.6€
Cultural Activities	Regular	3.4€
Sports	Regular	4.3€
Others	Regular	14.0€
Total	-	100.5€

Table 8 - Daily average tourism expense in the ARM per passenger, per sector⁴⁴

VAT Class	VAT Rate
Reduced	5%
Intermediate	12%
Regular	22%

Table 9 - ARM VAT rates in 2020⁴⁵

⁴³ <https://www.rtp.pt/madeira/sociedade/turistas-gastam-uma-media-de-12394-por-dia-na-madeira-20164>; https://www.acif-ccim.pt/wp-content/uploads/2018/Estudos/estudo_gasto_turistico.pdf

⁴⁴ https://www.acif-ccim.pt/wp-content/uploads/2018/Estudos/estudo_gasto_turistico.pdf;

https://info.portaldasfinancas.gov.pt/pt/informacao_fiscal/codigos_tributarios/civa_rep/Pages/c-iva-listas.aspx

⁴⁵ <https://www.pwc.pt/pt/pwcinformisco/guia-fiscal/2020/iva.html>

KPI	Value
Average Stay	5.11 days
Total Guests	1 590 882
Total Income	407 456 923€
RevPAR	44.29€
ADR	68.83€

Table 10 - Select ARM tourism KPIs in 2019

Origin Continent	Total Guests (#)		Total Guests (%)		Variation 2019-2020
	Aug 2019	Aug 2020	Aug 2019	Aug 2020	
Europe	162 271	64 204	97.0%	98.9%	-60.4%
Africa	400	84	0.2%	0.1%	-79.0%
America	3 430	501	2.1%	0.8%	-85.4%
Asia	858	111	0.5%	0.2%	-87.1%
Australia	333	29	0.2%	0.0%	-91.3%
Total	167 292	64 929	100.0%	100.0%	-61.2%

Table 11 - Total guest comparison between August 2019 and August 2020, by origin continent

Origin Country	Total Guests (#)		Total Guests (%)		Variation 2019-2020
	Aug 2019	Aug 2020	Aug 2019	Aug 2020	
Portugal	41 083	39 614	24.6%	61.0%	-3.6%
U.K.	27 453	5 583	16.4%	8.6%	-79.7%
Germany	23 937	7 188	14.3%	11.1%	-70.0%
France	23 845	4 368	14.3%	6.7%	-81.7%
Total (World)	167 292	64 929	100.0%	100.0%	-61.2%

Table 12 - Total guest comparison between August 2019 and 2020, by the ARM's key origin countries



Figure 3 - Closeup of MPB's airport signage



Figure 4 - Dark and light green circuit separator
 Additionally, social distance markers can be seen on the floor.



Figure 5 - Dark and light green circuit exits
 MPB staff distributing merchandise and pamphlets (left) and giant MPB entertainment screen (right)



Figure 6 - Blue circuit wait line
 From left to right: MPB passenger entertainment TV and speaker, floor circuit indicators with social distancing markers, test container entrance signage, “Safe to Explore” ad and health staff desk. At the end of this line, there is the medical staff support, changing and shower disinfection area.



Figure 7 - Airport testing containers

From left to right: Test container entry signage, “Safe to taste” ad and entrance to test block with wheelchair accessible ramp. There are approximately 5 containers and each container has 5 testing blocks. Each block contains two chairs, a table with medical equipment and a medical waste container.



Figure 8 - Governmental committee ensuring the well-functioning of the passenger control system

This figure includes Dr. Eduardo Jesus, Regional Secretary of Tourism and Culture, Dr. Pedro Ramos, Regional Secretary of Health and Civil Protection and Dr. Miguel Albuquerque, President of the ARM. This photo, along with figures 3-7, were taken during the airport guided tour.



Figure 9 - ARM's (left) and Portugal's (right) COVID-19 Safe certification badges

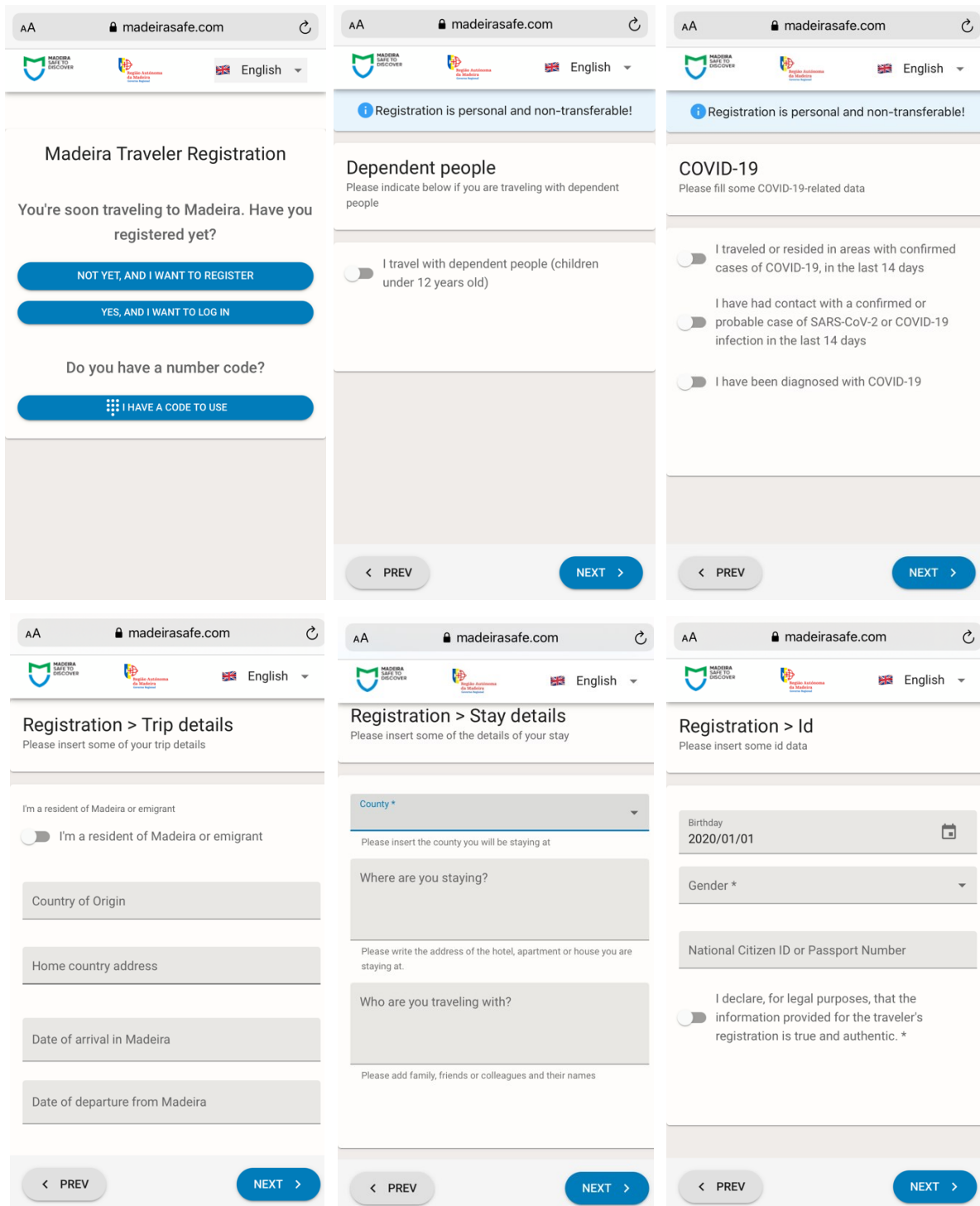


Figure 10 - MadeiraSafe platform registration process



Figure 11 - Collection of the ARM's most recent tourism awards

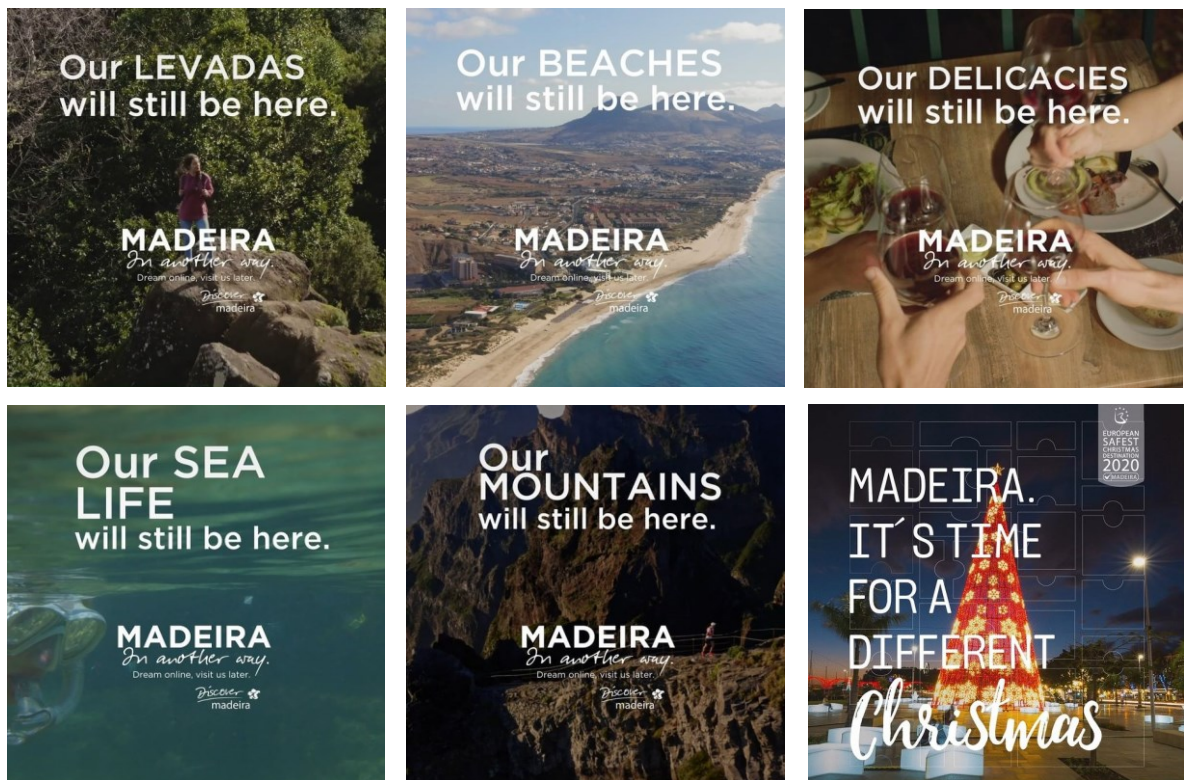


Figure 12 - Collection of ARM's promotional social media posts

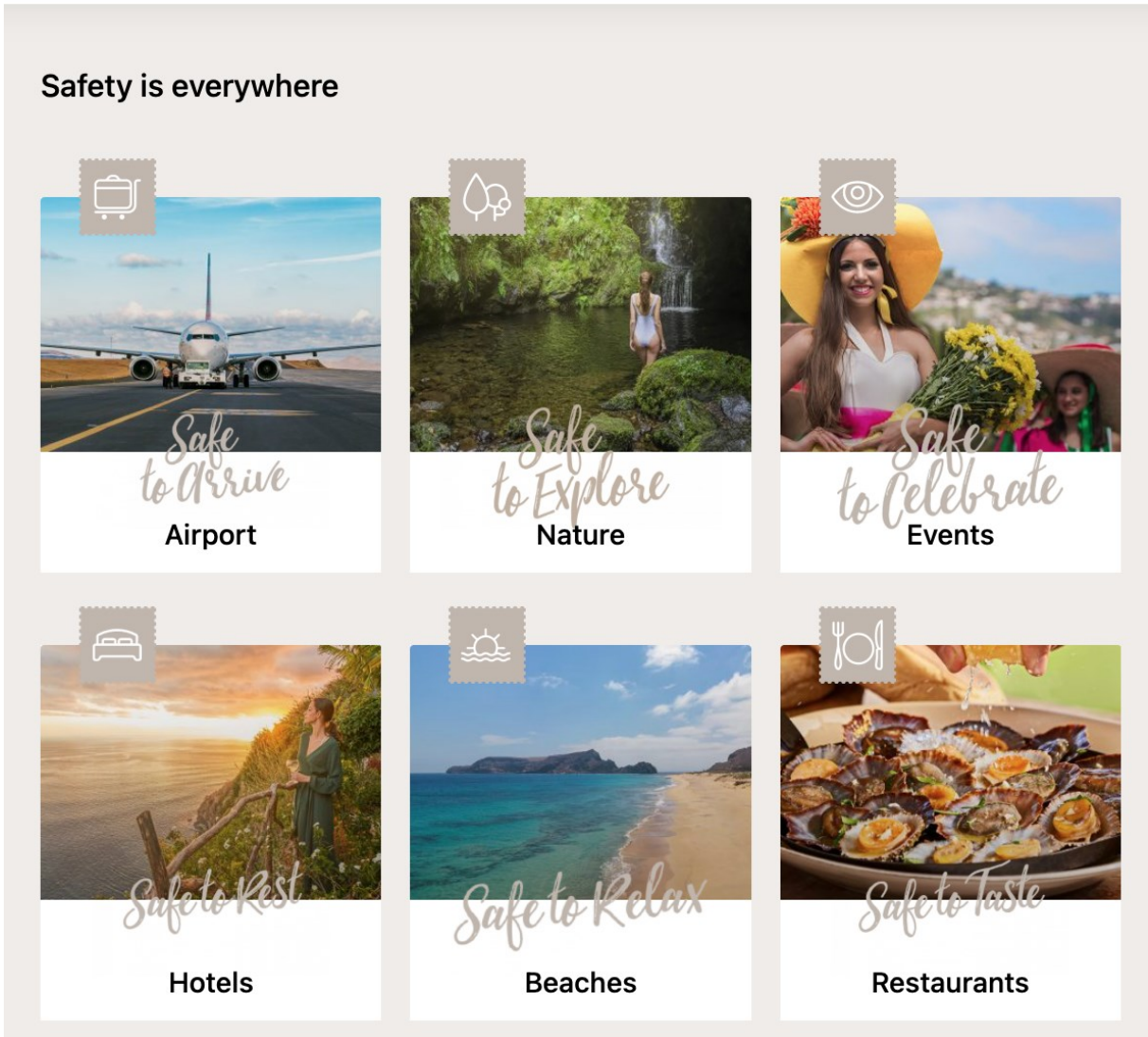


Figure 13 - Screen capture of madeirasafetodiscover.com on Visit Madeira's Instagram, which is managed by the MPB



Figure 14 - QR Code (left) and video thumbnail (right) for the "Generating Public Value While Navigating a Crisis" introduction video

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