

Innovation networks on aeronautical Portuguese heritage. A collaborative destination marketing approach.

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Abstract: This study is a proposed tourism product that adds value to Portuguese aeronautical resources, contributing to existing knowledge by: i) exploring aeronautical heritage as collaborative destination marketing: the Portuguese Aeronautical Route (PAR); ii) developing tourism products through innovation networks. The PAR incorporates collaborative destination marketing and proposes a product designed to re-qualify Portuguese heritage. Our findings suggest that there is an opportunity to promote the country using the brand of aeronautical heritage supported by a multi-destination route. The PAR also enables constant resource updating and ensures sustainability by involving collaboration that feeds an innovation cycle and reinforces its marketing potential.

Keywords: Innovation Networks; Aeronautical Heritage; Aeronautical Tourism; Collaborative Destination Marketing.

Redes de innovación sobre patrimonio aeronáutico portugués. Un enfoque de marketing de destino colaborativo.

Resumen: Este estudio pretende desarrollar un producto turístico agregando valor a los recursos aeronáuticos portugueses, contribuyendo al conocimiento existente al: i) explorar el patrimonio aeronáutico como un destino de marketing colaborativo: la Ruta Aeronáutica Portuguesa (PAR); ii) Desarrollo del producto turístico a través de redes de innovación. El PAR incorpora marketing de destino colaborativo y propone un producto que podría calificar la herencia portuguesa. Nuestros hallazgos sugieren la oportunidad de promocionar el país como una marca de destino aeronáutico, respaldada por una ruta de múltiples destinos. El PAR también permite una valorización continua de los recursos y asegura la sostenibilidad al involucrar la colaboración que alimenta un ciclo de innovación y refuerza su potencial de marketing.

Palabras Clave: Redes de innovación; Patrimonio aeronáutico; Turismo aeronáutico; Marketing de destino colaborativo.

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1. Introduction

To compete globally, destinations strive to offer unique tourist attractions. In many cases, imitation of the best cases leads to attractions' McGuggenheimisation (Richards & Wilson, 2006) where destinations rapidly lose their source of competitive advantage and the investments became unviable. Marketing places permits destinations to respond to this challenge by investing in more suitable communication strategies, supported on frugal differentiation arguments. In most cases, segmentation approaches serve as a basis for these marketing strategies (Tsotsou & Vasaioti, 2006). Therefore, the discussion about the best segmentation method focused a substantial part of the existing research (Frochot & Morrison, 2000). However, segmentation efforts fail to take long term effect (Tsotsou and Vasaioti, 2006), as the essence of marketing in heritage tourism - understanding consumer needs and wants – often is not a priority (Poria, Biran & Reichel, 2007). Moreover, locations, funding and short-termism dictate the core elements of all marketing plans (Chhabra, 2009).

Consumer needs and wants are related to tourists' authentic experience allowing each person, through travel, to fulfil his daily life with missing lifestyles, values, and dispositions (Yi, et al., 2018). To do so, in one hand, heritage tourism should develop potential to offer this dimension when tourists internalize the tangible and intangible elements as part of these 'fulfilling' experiences (Knudsen, Rickly, & Vidon, 2016). On the other hand, the improvement of authenticity perception should be based on the development of the heritage tourist assessment dimensions, such as the appearance, the local culture and customs they present, the site management, the site location, and the atmosphere of the heritage places (Nguyen & Cheung, 2016). On this vein, a network approach is found to contribute to a more sustainable marketing protocol for heritage tourism institutions (Chhabra, 2009).

On this vein, this research aims to present a distinctive tourism product for Portugal destination within a holistic and integrated management model that ensures its sustainability. It intends to: i) identify and analyse national examples as previous research studies have already identified, to present valuable evidence-based information to contribute to this network tourism product; ii) survey and select the main aeronautic assets to create an innovative tourism product; iii) propose an integrated network tourism product based on the aeronautic resources and related activities across the whole country.

2. Theoretical Background

2.1. Tourism and Tourism Product

Tourism is the result of a combination of different factors. It incorporates tangible and intangible components which are enriched by sociological and cultural features. Offer and demand are exposed to a high level of heterogeneity (Carvalho & Costa, 2011). Tourism products' consumption has to occur in the specific place where they are produced forcing the client to be proactive and to come to the destination (Weiermair, 2004) and 'tourism products are "experience goods" *par excellence*, validated *ex post facto* by consumers' (Decelle, 2004). Tourism represents a 'coordination-intensive industry in which different products/services (transportation, accommodation and so on) are bundled together into a final product' (Yang, 2012: 347).

Tourism experiences depend on a combination of different supplier services where each of them provides a range of facilities to increase tourist satisfaction. In this matter, tourists often perceive the value-added of tourism products as an amalgam of different services (Yang, 2012), selecting them according to their expectations of a 'total experience' (Framke, 2002).

Tourism faces the challenge of providing product diversity to follow dynamic tourist needs (Yang, 2012) and to integrate a wide range of suppliers (Rigall-I-Torrent & Fluvià, 2011). Tourism destination theory argues for the importance of such multiplayer orchestration (Crouch, 2011) where a network of organizations is required to compose a product once tourists expect a appropriate combination of private and public services (Rigall-I-Torrent & Fluvià, 2011).

Developing new tourism products and evolving the existing ones by integrating heritage tend to rapidly consumed (Tunbridge, 2008). As such, destinations should be able to respond to tourist's changing demand (Framke, 2002). Therefore, tourism innovation is crucial to offer 'much more splendid and abundant tourism experiences, which improve tourists' satisfaction and enhance tourism industry's competitiveness and development' (Yang, 2012: 1348). Moreover, innovative perspectives based on military (or others) assets must be considered, especially because they can make connections with other heritage resources (Tunbridge, 2008).

Innovation is a main competitive driver, contributing to R&D (Arrow, 1962), technical innovation (Freeman & Soete, 1982), service innovation (Barras, 1986), entrepreneurship (Drucker, 1985), absorptive capacity (Cohen & Levinthal, 1990), cluster and strategic competition (Porter, 1998), and innovation networks (Powell & Grodal, 2005).

Innovation is defined by the OECD, in the Oslo Manual, as ‘the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations’ (OECD, 2005: 46).

2.2. Tourism Innovation

Tourism is a complex industry that contains similarities with other business activities such as retailing, banking, or recreation, which apply marketing of services (Decelle, 2004). Tourism possesses unique characteristics (Hjalager, 2002, 2009, 2010a): i) The link to a specific location (Hjalager, 2010a); ii) Labour force is relatively unskilled (OECD, 2006); iii) Is dominated by SMEs (Hjalager, 2002); iv) Firms are more oriented to competition than to cooperation (Decelle, 2004). Innovation is quite often conducted by old and large tourism firms, but SMEs can equally benefit from it by exploring constellations in collaborative structures to overcome its innovation handicap (Hjalager, 2002).

Tourism products involve multiple suppliers. The coordination between them and distributors, to assure a value-added chain, is crucial to their success (Yang, 2012). Hence, networks can be considered as a path to foster tourism product innovation, which stimulates new tourism demand and spreads out the word-of-mouth (Yang, 2012).

As the determinants of innovation can be found outside the tourism core sector (Hjalager, 2002), tourism also enables innovation through other sectors once they explore its (tourism) generated externalities (COTEC, 2009). It clarifies the necessity of developing innovation through the interaction with other actors that might not be directly related to the tourism industry (Carvalho & Costa, 2011).

2.3. Innovation networks

Networking is one of the five skills of the ‘true innovators’ (Dyer, Gregersen & Christensen, 2009). Organization retaining people with networking capacities evolve to higher levels of innovativeness (Kastelle & Steen, 2014). Thus, “networks are an essential element of innovation” (p. 102). Innovation networks require members from different areas and organizations (Ahrweiler & Keane, 2013) and creative environment exposition (Powell & Grodal, 2005). Organizations with broader networks are exposed to different experiences and competences (Beckman & Haunschild, 2002).

Consequently, an innovation network is a combination of organizations, involving people and ideas to create new products, processes and organizational structures (Ahrweiler & Keane, 2013). They gain by “getting close to customers to understand their needs, working with suppliers to deliver innovative solutions, linking up with collaborators, research centres, even competitors, to build and operate innovation systems” (Tidd & Bessant, 2009: 282).

2.4. Tourism Networks

Despite its industrial context origins, the importance of tourism networks has grown significantly for researchers (Shih, 2006; Plaza, Galvez-Galvez & Gonzalez-Flores, 2011; Kimbu & Ngoasong, 2013). Appendix 1 summarizes some of the main contributions.

Tourism networks enable the best possible exploitation of ‘place advantages’ leading to synergies in an inherently complex tourism offering (Pinto & Kastenholtz, 2011). This can be promotional cost reductions, extending markets (Cai, 2002), improving complementary firms which may not necessarily be involved in the same sector (Novelli, Schmitz, & Spencer, 2006).

Collaboration (WTTC, 2011) and external innovation networks (OECD, 2006) enable innovative solutions in competitive and sustainable ways (WTTC, 2013). Coordination is necessary to debate and think creatively to adjust at constant changes (WEF, 2013).

Likewise, sustainability is central to promote tourism development supported by people, planet and profit needs (WTTC, 2013) where education and knowledge management are key factors (UNWTO, 2011a). Network-based governance models also facilitate the innovation process (UNWTO, 2011b).

2.5. Networks as a Destination Marketing Strategy

Although tourism networks serve multiple purposes like facilitating packages of related products through alliances (Miguéns, 2009), “most of the collaboration tends to involve destination marketing

driven by territorial authorities” (Decelle, 2004: 11). Destinations are bundles of tourism products offering an integrated experience to consumers (Buhalis, 2000).

Destinations have inter-related firms promoting their tourism products, which develop a “co-marketing alliance” (Palmer & Bejou, 1995: 618), promoting tourism innovation (Decelle, 2004; Shih, 2006; Cooper & Baggio, 2008; Miguéns, 2009; Hjalager, 2010b). As the integrated tourism supply expands, tourist behaviour adjusts (Novelli, Schmitz & Spencer, 2006) by consuming a network of services to obtain a complete experience (Buhalis, 2000).

For an individual company, it is difficult to act in a highly complex environment. Instead firms should articulate and develop synergies with other stakeholders to maximise the outcome for tourists and companies (Pinto & Kastenholz, 2011). Hjalager (2002) proposes a knowledge-transfer channel as a broader model to understand the push and pull mechanisms (Hjalager, 2002) to conduct innovation processes. In addition, the tourism industry relies on cooperation to effectively sell tourism experiences and destinations, despite collaborative efforts in tourism still being limited (Plaza, Galvez-Galvez & Gonzalez-Flores, 2011). Moreover, it should go further and evolve from centralised destination stakeholder participation to a decentralised structure to ensure effective tourism development (Kimbu & Ngoasong, 2013).

3. Method

Tourism is a complex phenomenon which entails social and economic views and assimilates different activities and players. Therefore it requires multidisciplinary focus (Riley & Love, 2000). A qualitative research was developed because tourism research needs a more general perspective (Walle, 1997), which considers the context, its associated interactions and multiple realities that accounts to explain the tourism phenomena (Riley & Love, 2000).

To refine general theory and apply effective interventions in complex inductive approach enabled a close interpretation of the research context (Saunders, Lewis & Thornhill, 2009), to grasp tourism multiple realities and to allow tacit understanding of the phenomena (Riley & Love, 2000). The deductive approach allowed a data collection to support theory and the operationalization of concepts (Saunders, 2009).

To accomplish the validity and credibility of data (Yin, 2011), different sources were integrated, combining primary and secondary data collection at all research levels.

Secondary and primary data were collected to have cross-fertilization between these two sources, enabling a validity test. To collect secondary data an extensive literature review was done, allowing to identify key issues and challenges on the development of tourism products and on innovation networks.

Secondary data collection permitted to combine theoretical concepts with practical issues, which contributed to define PAR constitution and management. Multiple sources were considered to collect various evidences, such as scholarly research; international and national institutions reports; internal institutions studies; specialised books; national and international statistical data; institutional brochures; specialised magazines; site visits.

To gather primary data (Schlüter, 2003) some semi-structured interviews were done, with an average duration of one hour.

Table 1: Interviews

| Knowledge Topic | Number of interviews | Interviewed Description |
|---|----------------------|-------------------------------|
| i) Tourism Products/Routes | 2 | By skype |
| ii) Portuguese aeronautical assets owners | 5 | Three in person; two by email |
| iii) PAR's potential partners | 7 | Five in person; two by email |

As each knowledge interview topic corresponds to a different research level, each of them considers a specific purpose: i) to identify and understand how was the route/product created and to retain the main practices of how it is managed; ii) to identify distinct Portuguese aeronautical assets with touristic potential; iii) to recognise networks creation and operation, especially their governance and innovation activities; iv) to identify potential partners for the PAR.

In order to complement primary data collection, researchers visited the three nuclei of Museu do Ar. This allowed experiencing and obtaining information: touristic offer, hospitality and guiding visits, assets variety, and exhibition display.

Data analysis was conducted by summarising and categorising data, enabling to highlight relevant issues and identify apparent relationships. Categorising data was developed by grouping data by themes/codes that emerged from literature. These data groups supported the data analysis framework, extracting inputs from primary data to address general questions and then combining it with secondary data evidences, supported by the input of different sources, which defined the proposed PAR.

The collected information was submitted into a content analysis to evaluate interviewees' opinion frequencies. Next, these evidences were combined with secondary data to obtain and describe its relevance and uniqueness, once they are the basis to incorporate the PAR.

A benchmarking methodology was equally developed, comparing Portuguese museums with the world's best aviation museums to enumerate its potential and to withdraw its subsequent developments as a tourist experience.

4. Results and Discussion

Aeronautics is an international activity, which emerged at the beginning of the twentieth century, worldwide. It is a result of successive improvements on different knowledge (Arezes, 2010), where its compilation of "advances and innovations, including radar and aerospace" (Trott, 2012: 7) disrupted on the creation of the great innovation of the 20th century (AAVV, 2010): the aeronautical phenomenon (interviewee 2).

Portugal has a diverse aeronautical heritage, hastened by main events like the Great Wars, and Colonial Wars as stated by interviewee 3. Portuguese aeronautic assets are defined by their military and civilian diversity, which have a significant impact on tourism. In fact, "technologies that have had a profound impact upon the conduct of war have, equally importantly, contributed to the speed and accessibility of civilian air transport" (Weaver, 2011: 677). Besides, military towns and facilities represents a growing touristic attraction (Tunbridge, 2008; Fernández-Fernández & Moshenska, 2017).

4.1. Sintra's Museu do Ar (SMA) Benchmarking Application: a tool to empower the PAR

In Portugal, the aeronautical offer is typically focused on aviation museums. Thus, they are strategic elements to implement an organised touristic offer. That is why it is important to utilise a benchmarking methodology, which analyses and evaluates SMA positioning.

With an area of 3,000m² of extension, Sintra's nucleus reveals a rich and diverse collection (Araújo, 2013), integrating both civil and military assets with FAP, ANA and TAP's exhibitions, and it is the main exhibition area of the Museu do Ar. According to these criteria, it can be considered as a national aviation museum (Araújo, 2013).

Hence, it is going to be compared with its worldwide competitors once its relevance and conditions allow improving this museum into a tourist experience, which can be replicated on other Portuguese aviation museums. Portuguese aeronautical museums have been poorly explored as a tourism resource. Alternatively, they represented a way to relate the history of military and civilian airplanes, besides their potential to attract niche market tourists.

To explore their potential they must be affiliated to other aeronautical and space attractions, supported by further research. Meanwhile, to enable tourism services on aviation museums, it is necessary to display some facilities and address demand needs (Buhalis, 2000).

Once museums become tourist attractions another perspective of competition is needed as a result of becoming global players (Buhalis, 2000; Novelli, Schmitz & Spencer, 2006). Aeronautical museums recognize themselves as global competitors adding value for an experienced demand who expects to see assets and heritage and interact through innovative experiences.

4.2. Benchmarking Application

To reflect international competitors' offer, to identify key success factors and to qualify Portuguese aeronautical museums, benchmarking was used recurring to a sample of the five best aviation world museums (Drescher, Hinson & Donaldson, 2014) (see appendix 2). It is possible to conclude that SMA has a smaller scale. It presents several strengths, like a location near a Sintra tourist village; an aerodrome; meeting areas; and basis to organise airshows and tour guides.

Considering the collection richness and its conditions, Sintra's nucleus is a key enabler to implement the PAR, qualifying its offer and attracting other Portuguese aviation museums to the network.

4.3. Considerations for Museu do Ar as a key enabler for the PAR

Despite Sintra nucleus being the main structure of Museu do Ar, Alverca, and Ovar complement it so it is important to analyse all nuclei because each has its own schedules and resources. Besides, its decentralisation is a strategic way to increment visits and to allow the public's aeronautical history fruition (Araújo, 2013), therefore improvement hints are crucial to develop the entire museum as a tourist experience. Supported by benchmarking analysis it was possible to identify critical variables for their success:

- (1) **Research** - Invest time and resources to constitute its completed archival collection and develop research through all its assets. It is important to urge and stimulate the museum's offer.
- (2) **Qualified Team** – it is crucial to creating a qualified and multidisciplinary team (Araújo, 2013) for research, systematic restoration activities; to potentiate a learning and experiential visit by 'Professional Tour Guides'.
- (3) **Timetables** – Timetables differ from place to place, which is related to human resources availability. They need to be similar to create a complementary program.
- (4) **Accessibility** – Location is determinant on tourism attractions (Medlik, 2003) and accessibility influences visitors flow that an attraction/ destination can achieve (Keller, 2004). Sintra and Alverca have great accessibilities but Ovar's nucleus has its exhibition area in a hangar in the middle of Ovar Air Base with indirect accesses.
- (5) **Airshows** – Museu do Ar used to promote frequent air shows discontinued due to economic factors (mainly maintaining some Dornier Do-27). 'Airshows and aviation events are often planned as important aspects of the offerings of an aviation museum' because they can attract "hundreds of thousands of visitors" (ConsultEcon, 2006: 2). It should be developed and successively should increase its flying aircrafts, to create a dynamic touristic offer.
- (6) **Collection** - Museu do Ar is one of the World's best aviation museums, assuring a spotlight in a highly developed sector of aerospace exploration and developing components and programs to keep Portugal flying (Macário, 2010).
- (7) **Languages** – To welcome and to be able to receive tourists it is crucial to display information in different languages. Thus, at least information should be available on main languages that Museu do Ar's consumers speak.

4.4. Aeronautical Heritage Conclusions

Notwithstanding though this research is restricted to six entities, they reflected aeronautical evolution and are the main responsible for aeronautical culture in Portugal. As the aim of this study is to promote aeronautical heritage valorisation, it is important to state the main developed initiatives to reveal national collections to the local/regional community but also to analyse what kind of external collaborations they have to qualify and boost their collections. The initiatives considered for Museu da Aviação were based on information about its previsions so 'External Collaborations' was not possible to evaluate.

Table 2: Aeronautical Heritage Valorisation

| Initiatives | Museu do Ar | Museu da ANA | Museu da TAP | Museu da Aviação | Museu Aero Fenix | Aero Club de Portugal |
|------------------------------|-------------|--------------|--------------|------------------|------------------|-----------------------|
| Exhibition | | | | | | |
| Archive Availability | | | | | | |
| Air Shows | | | | | | |
| External Collaborations | | | | | | |
| Assets Exchange/ Transfer | | | | | | |

The common resource among these entities is an ‘Archive Availability’, enabling people to consult its bibliographic collections to learn about aeronautical history or aircrafts models. The exhibition is assured by most entities except Aero Club de Portugal, which has mostly awards objects and Museu Aero Fenix because it is a living museum, maintaining historic airplanes flying. That is the only entity providing airshows and allowing fly the airplanes.

‘External Collaborations’ are present in almost all entities but are mainly national entities, with the exception of the tri-partied protocol between TAP, ANA and FAP, defining strategies together twice a month.

Museu Aero Fenix collaborates with European Federation of Historic Aviation representing Portugal since 2010; is an affiliate of European Aviation Preservation Council; member of European Airshow Council; and associate Network of European Museum Organisations. This enables a regular knowledge exchange that improves internal capacities in different areas, ‘since restoration techniques until aerial operations risk analysis’ (interviewee 2).

Museu do Ar used to attend these conferences and meetings about aviation museums and it also values them but nowadays it is not their practice, due to cost reduction necessity. ‘Assets exchange’ can enrich a collection and Museu do Ar explores it extensively to raise its diversity and assure a unique collection. Though is important to state each collection to identify Portuguese aeronautical heritage.

Table 3: Entities’ Collection Discrimination

| Collection | Museu do Ar | Museu da ANA | Museu da TAP | Museu da Aviação | Museu Aero Fenix | Aero Club de Portugal |
|----------------------------------|-----------------------|--------------|--------------|------------------|------------------|-----------------------|
| Aircrafts | 120 | | X | X | 8 | 10 |
| Bibliographic | 5,000 | X | 23,600 | X | X | X |
| Photographs | X | 15,000 | X | X | X | |
| Uniforms | X | X | | X | X | |
| Flight Traffic Control Equipment | X | X | | X | | |
| Telecommunications | X | X | | | | |
| Artistic Assets | | | 4,900 | | | |
| Technical Items | | | 155 | | | |
| Trophies and Medals | | | | | | X |
| Legend: | X – not accounted for | | | | | |

Based on the table, ‘Bibliographic’ and ‘Photographs’ are the most common types of assets. ‘Aircrafts’, the most attractive asset, are presented in five collections. Despite Museu da TAP and Museu do Ar being different collections, they are both exhibited in SMA.

All entities maintain relevant collections, but as they don’t have an accurate inventory. For instance, it is usual to integrate ‘Photographs’ in ‘Bibliographic’ category. This represents an opportunity for a collaborative project aiming:

- (1) To develop an exhaustive inventory where entities could share knowledge and exchange research processes to categorise assets;
- (2) To overcome restoring challenges and increase knowledge and collaboration since each category has diverse types of assets.

It is possible to conclude that these six entities own different collections. Although every single one tells its own history if all were combined it would create a new and distinctive 'tale' of the Portuguese aeronautical culture. Additionally, Portugal possesses unique assets, some are in their original form, and others are true rarities or belong to a few survivor samples. Portugal has the know-how to conserve, preserve and/or to manoeuvre them, which determines the Portuguese potential to explore them as dynamic assets and attractions.

Each entity has different assets: i) FAP has the main military assets and aircrafts of military aviation history; ii) ANA has a great heritage of telecommunication assets; iii) TAP has a diverse collection of uniforms, crockery and technological developments to correspond to the international aviation standard; iv) Aero Club de Portugal has trophies of the main events in aviation events; v) SATA has the main collection on Azores aviation development.

Assets contemplation and fruition are necessary to contribute to a unanimous identity and to enrich the public and introduce them for a diverse aeronautic and dynamic knowledge (Ramos, 2013).

In terms of SMA Benchmarking, it has the main installations categories (Aerodrome Location; Airshows conditions; Food Service capacity; Meeting Areas) to reach an international market. It could reach a part of Sintra's stable demand of two million visitants per year, with 86% foreigners (SIAM, 2009). Sintra's touristic offer is widely supported by a qualification of its strategic Cultural and Natural Touring product (SIAM, 2009).

To improve tourism services research and personnel are important. Research offer sustainability, allowing knowledge about each piece, and a qualified team enables the exploration of this knowledge to create a unique offer (Hjalager, 2010b). Both enable guided-tours, different circuits through exhibition spaces and a dynamic events calendar as a regular offer, attracting tourists and visit repetition (ConsultEcon, 2006). Museum volunteers' management and partnerships should be settled with universities to organise fellowships in areas such as hospitality, conservation, tour-guide, history, engineering, etc. It would spread knowledge and ideas exchange and development processes, evolving its services by considering multiple attendees profile, with moderate costs in return of practice experience providing.

FAP started collecting and preserving, with militaries dedicating their free time to preserve and restore aircrafts. Currently it discloses a diverse collection created to expose and diffuse aeronautical assets. The expenses raised largely with collection extension (Araújo, 2013) increasing aircrafts maintenance and restoration costs (ConsultEcon, 2006).

Despite Museu do Ar difficulties of space and funding limitations (Araújo, 2013) it should adjust its activity planning (WTTC, 2003) to improve its offer and positioning into an international level, avoiding competition on price (Hjalager, 2010b). Embracing tourism as its strategic activity is a way to raise its yields, and also to foster the development of the PAR, ensuring benefits for all its partners (WTTC, 2003) through an inter-firm unique tourism product.

Resources like money and manpower permits to improve tourist experience and ensure its sustainability since product innovation and market extension guarantee its performance (Hjalager, 2010b). Product's improvement enables exploration of the existent market. New products boost exploitation to reach new market targets.

Analysing the other two nuclei of Museu do Ar, it is possible to conclude that Ovar and Alverca need more interventions to reach an international level because they weren't submitted to successive upgrades as Sintra did.

Likewise, Ovar's nucleus is affected by being integrated into a military structure and located in the middle of Ovar Air Base, with difficult accessibility, which in terms of defence is a strategy to manage its operation for territory's protection but in tourism terms it can be a constraint.

Extending this analysis through Portuguese aviation museums and comparing them with international sample of Table 3, it is possible to identify the path to improve aviation museums experience, mainly: i) to develop an 'Educational Programming' (Araújo, 2013); ii) to create an 'Interactive Exhibits' since it induces diversity in the visitor experience; iii) a 'Dynamic Events Calendar' as changing exhibits are crucial to generate attractiveness and repeat visitation (ConsultEcon, 2006).

Moreover, it would be important to develop collaboration with international aeronautical museums to surpass specific conservation challenges or reinvent exhibitions but maximizing resources; and with international aeronautical associations to improve knowledge. It would be a possible common path for Portuguese aeronautical museums, which jointly could achieve common objectives, share resources and improve knowledge about their activity or aeronautics to, consequently, increase experiences and differentiate their offer from global competitors, where international seminars and conferences enable to follow competitors' steps and global trends.

5. The Par: A New Tourism Product Conceptualisation

Tourism products are bundles of attractions, facilities and services consumed by tourists in destinations to fulfil their needs (Buhalis, 2000). Medlik (2003) defined it as an experience, which is a complex definition that includes the dimension of product's consumption ambiance, the product's composition itself and customer's intervention to consume it, which enables the cycle of consumers satisfaction and products creation.

Routes stimulate these combinations (Shih, 2006), multi-attractions with their distinct 'flavour' (Keller, 2004) and multi-players with their own interests. Articulating them with network features would boost regional development, pursuing a common goal to develop aeronautical tourism products and promoting their assets fruition (Shih, 2006). For cultural tourism, routes are the main product that tourists are interested in (Maia & Baptista, 2012).

As analysed, little research conducted by aeronautical museums' is their primary weaknesses (Araújo, 2013; Ramos, 2013), resulting on low inventoried assets and knowledge about their history as well as their cultural value (Vieira, 2008). This knowledge is a key resource to manage the museum's regular operation and qualify them as a tourist attraction, so it is important to value it.

As museums have this constraint, a network framework is an opportunity. It would promote knowledge exchange and collaboration activities on current pieces they are investigating, to complement their history with fewer resources; also to share techniques and methodologies about conservation, operation, and maintenance of historic airplanes, as well as other assets; and, for instance, a specific training programme could be jointly developed to promote experience sharing and team building as members of the network.

Appealing to a route network framework ensures PAR's sustainability as it enables: members diversification collaboration, which allows different perspectives and resources; minimise organizations' limitations; solve problems and rise tourism products, allowing progresses on common knowledge, brand and singular experiences (Turismo de Portugal, 2012) to an experienced demand (Weiermair, 2004).

The network, which is responsible for speeding up product's reengineering and service quality (Turismo de Portugal, 2012), combined with the route's exploration, supported by engagement of local aeronautical entities from multi destinations, improves innovation and promotes cohesion through firms, and consequently, their offer.

Since most aeronautical assets owners have small dimension, a collaborative model, sharing resources and knowledge, promotion and scale economies could be the solution to create a distinctive tourism product. Including various destinations and multiple assets, allows theme routes creation and products development to different targets, which goes from those who have a curiosity about airplanes to experienced pilots which wants to see what Portugal has to offer.

PAR offer is qualified, encouraging tourists to stay more time and, consequently, increasing country wealth, so it addresses "the challenge for the local entrepreneur is therefore to create additional customer value with new products" (Keller, 2004: 5). For example, Hume City, a region of Australia that has aviation heritage aims to increase its awareness. In its future tourism planning, presents a development of non-traditional products strategy. By creating distinct attractions, supported by improvement of aeronautical experiences (Hume City Council, 2013) these non-traditional products qualify traditional ones, by appealing at synergies between them and exploring local resources and community to attract and satisfy niche markets.

The distinctive tourism product supported by a network framework focused on aeronautical enthusiasts' motivation, can also be articulated with Portugal traditional strategic products, like city breaks, gastronomy and wines, cultural touring, and others (Turismo de Portugal, 2012) as one supports the others. All interconnected qualify Portuguese territory when a dynamic demand is requesting for diverse tourism products to induce tourists repurchase.

5.1. Network's Structure of The PAR

The primary goal of this route is to promote Portuguese aeronautical culture, which is much beyond material assets' value (Vieira, 2008), so to convey this ambiance, different experiences are needed. Therefore, partners selection and network's structure has to correspond to these goals.

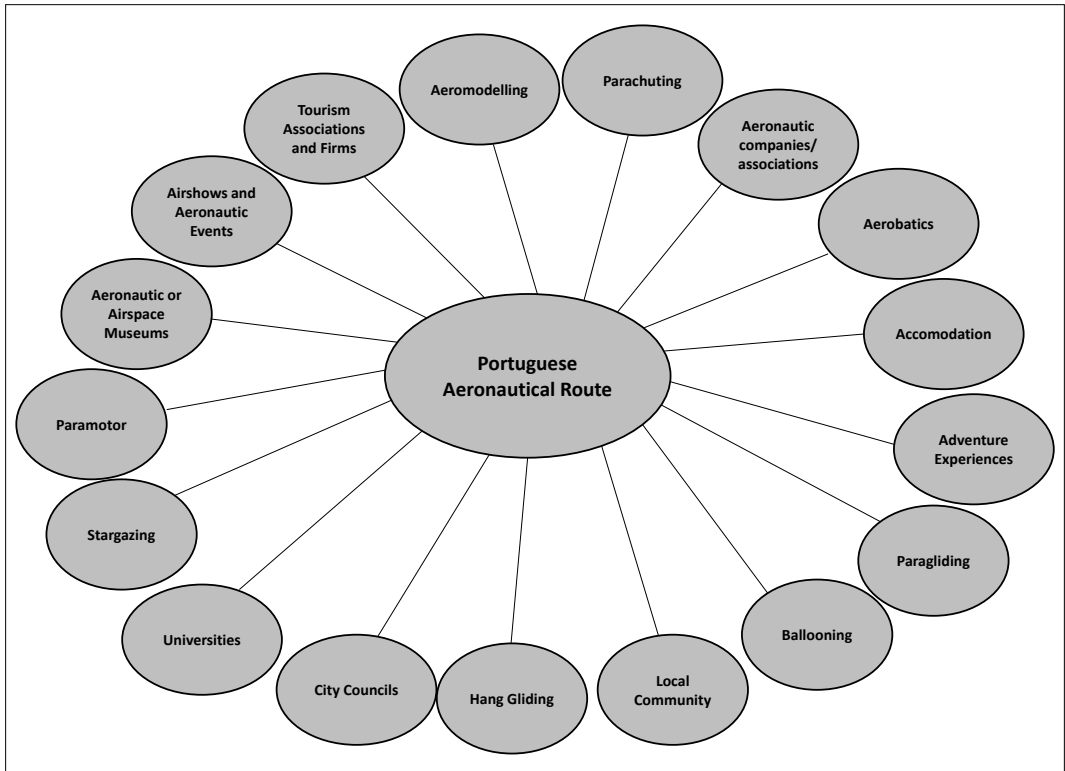
Actor's heterogeneity contributes positively for the development of collaborative innovation, like knowledge integration, co-evolution of social and business relationships, and technological development, fostering creativity and making group interaction more effective (Corsaro, Cantù & Tunisini, 2012). Therefore, their core activities differ and their organizational features can vary among public, private,

and academic actors on knowledge transfer. However heterogeneous actors promote the network's cohesion and are more successful (Corsaro, Cantù & Tunisini, 2012).

City councils are also crucial to implement new tourism products as they must speed up infrastructures, legal issues, processes facilitation and provide public characteristics like cultural legacy, safety, environmental preservation and streets cleanliness (Rigall-I-Torrent & Fluvià, 2011).

Consequently, a constellation of aeronautic entities should be integrated and combined with organizations from the tourism sector to compile a distinctive tourism product, representing all the value chain of the PAR.

Figure 1: PAR's Structure



It would be a network of networks as it would aggregate entities with common activity constituting sector's networks, which also would interact direct and indirectly with partners from other areas along the network. This figure clarifies the main domains it could integrate, attending to existing aeronautical entities, to promote a polyvalent network, fostering and diversifying aeronautical experiences.

5.2. A possible path to structure the PAR

To develop a tourist route there are four main steps: i) define which route would be implemented; ii) present which tourist attractions would compose the route; iii) do a geographic inventory and accessibilities to connect those tourist points; iv) implement a program to delineate the route (Maia & Baptista, 2012). However, this study just contemplates stage i) and ii), once this study proposes route's conceptualization. These activities feed networks' structure once the majority of its partners are both members and tourist attractions.

Involving key players is a priority to constitute the PAR, specifically Museu do Ar; Museu da ANA; Museu da TAP; Museu da Aviação; Museu Aerofenix; and Aero Club de Portugal. To create the route, a

regional combination of “various organizations and businesses in a geographically limited area’ should be done ‘to harmoniously work together to achieve a common goal’ (Pinto & Kastenholz, 2011: 217). Criteria should also be established (Maia and Baptista 2012) to promote a sustainable tourism product and a united network, such as i) be related to aeronautic theme; ii) present distinct experiences and its own stories to involve tourists; iii) show collaborative experiences; iv) present a tourist compatible timetable; v) English spoken. It should also be important to inquire entities about their perception of aeronautic enthusiasts’ tourist interests and what would be an exceptional offer for them. Additionally, by asking this, they could embrace this as a common goal they could achieve and their commitment increases, pursuing it, with network’s partners, to offer an extraordinary experience.

Thus, the creation of different regional products but all articulated, where each of them absorbs innovation network model, would compose the PAR. This way of articulating them would correspond to travellers’ research behaviour, which decides their tourist routes destination based “not only on the connected and convenient roads among destinations but also on the complementarity of available resources and attractions” (Shih, 2006: 1038).

It is crucial to managing structural holes and closeness through the route since each region possesses different opportunities (Shih, 2006) to create its own products. A network at a national level can benefit from distinct innovation waves, region influencing region, fostering innovation cycle and its outcomes over route’s members. Yet, PAR’s main purpose is to connect complementary activities, taking advantage of their synergies to explore valuable assets and create a new tourism brand.

As stated by Novelli, Schmitz, and Spencer (2006: 1143), a goal for this type of networks is to “highlight the availability of certain activities in one destination or region and to get SMEs that would normally work in isolation to co-operate and build a successful tourism product”. This multiple networks articulation can be challenging, especially to effectively share both codified and tacit knowledge (Decelle, 2004), but it is a way to stimulate continuous services’ innovation cycles, assuring sustainable development based on public actors and private stakeholders to improve social structures and preserve resources (Brás, Costa & Buhalis, 2010). Furthermore, it is a way of promoting dynamic programs, creating thematic sub-routes and events calendar through regions.

5.3. Route’s Marketing Strategy

Previous innovation management strategies intend reversing the usual appliance of defensive strategies by tourism industry (Hjalager, 1997). Instead, its conceptualisation and implementation should foresee the employment of multiple types of innovation to assure sustainable tourism (Hjalager, 1997). Since tourists are attracted to military or civilian aeronautical assets, destination marketing strategy can benefit other local heritage resources (Tunbridge, 2008). Additionally, tourism products are very intangible (experiences) and their consumption involves active participation of consumers.

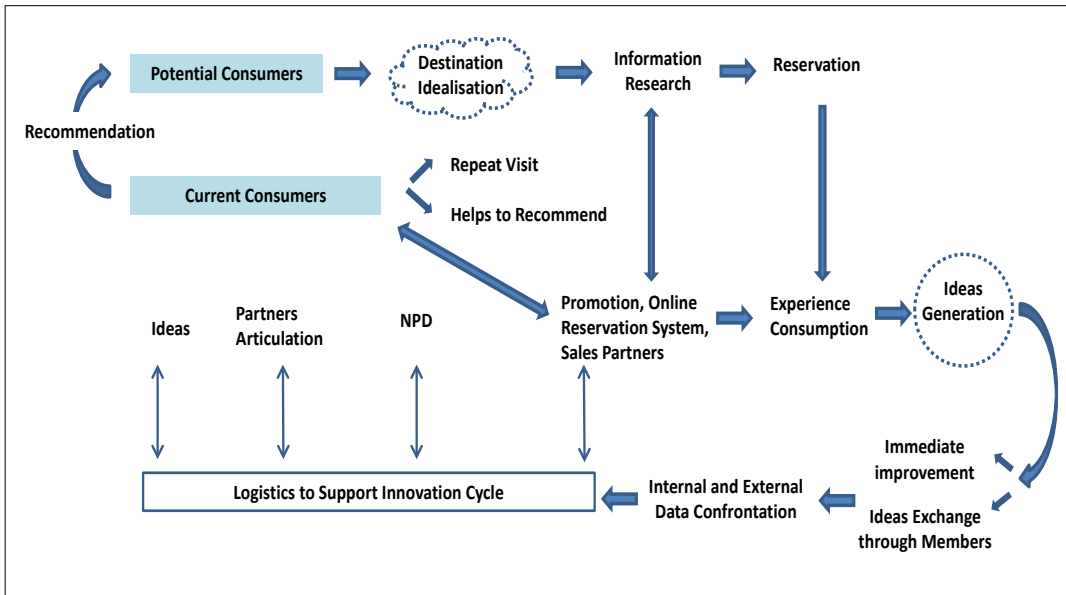
This route applies innovation management strategies into organizational and processes to develop an innovative amalgam of services/products, an innovative marketing strategy is required to attract consumers; to ‘deliver’ its product, matching their expectations; to constantly combine stakeholders for unique experiences; to manage tourists changing needs and, consequently, to receive recommendations, which enables a destination image creation onto potential consumers’ imaginary (Baloglu & McCleary, 1999) and fosters its sale.

Tourism marketing strategies ‘serve as stepping stones for increasing the value of products via innovation’ (Weiermair, 2004: 3). Since ‘what heritage values we choose to ascribe to these resources is up to us’ (Tunbridge 2004, 231) it is critical to implement the innovation network framework and articulate all its processes and organizations, which determine its products success through an innovation cycle, as Figure 2 illustrates.

Therefore, marketing has to be gingerly articulated with the other innovation types as it is a dynamic engine that complements and supports them, providing communication through all network’s members and with clients; articulating this information with network’s partners, to enable innovation cycle; leading logistics’ tools to allow reservations over network; providing inputs for products improvement/creation and also to follow each step of this process; analysing obsessively its market segments; and promoting its developments.

Concluding, the PAR is based on a network model that delivers a multiple innovation strategies, namely: organizational, processes and marketing. All of them pursue a product’s innovation and all should co-exist in each stage of route’s innovation management since it is crucial to articulate it with the route’s goals.

Figure 2: Marketing Provision through Route's Innovation Cycle



6. Conclusions

The PAR is an opportunity to assemble aeronautical heritage and existent activities into a diverse, authentic and a multi-destination experience. It would allow achieving several targets and corresponding at different motivations. Similarly, it would boost research, especially in museums, about assets' history and their details, which would improve the touristic offer. By integrating air shows, it would be possible to attract visitors (as people have plenty motivation to attend to them) and to develop a local marketing strategy by telling the place story, especially in locations hosting military facilities (Garnaut, Freestone & Iwanicki, 2012). Its orchestration entity would be independent, purposely created to represent all its members' interests. Its structure would be composed by a mix of tourism and aeronautical entities, which would articulate networks of organizations with common activity's sector. It would foster the production of new knowledge and would increase innovation and solution co-creation.

To implement the PAR a combination of different regional products is needed. Consequently, there is a wide products' portfolio, which is constantly improved or created, with the support of its innovation network framework. However, to manage it, involvement along route's members is crucial to reverse the existence of weak ties on tourism networks (Cooper & Baggio, 2008).

Also, tools and channels diversification are relevant to raise members' trust and commitment, which affect their cohesion and, consequently, promotes effective knowledge transfer and enables learning processes converted into results. Besides, management of temporary human resources is urgent once tourism reveals one of the highest turnover rate and it restraints innovation processes.

Furthermore, the cooperation of all entities' staff – from managers to volunteers – on innovation processes is necessary as they are the basis to spread out an Innovation Management Model of the PAR. Consequently, it is the key to implement the innovation cycle model described, which is responsible to register clients' suggestions, instigate ideas generation and resulting on new products development. Besides new products creation, this model goes further and supports the route's recommendation for new potential tourists and the repetition of effective clients as the innovation marketing strategy, combined with NPD, achieves different targets. Concluding, NPD introduces novelty and communication plan is responsible to attract them. However, a complement of innovation through processes and organizations are crucial to implement this multiple innovation models to ensure the PAR's sustainability.

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Appendix 1: Main Contributions of Tourism Networks Research

| Authors | Contribution |
|---|--|
| Palmer and Bejou (1995) | Tourism destinations as local alliances to constitute products based on stakeholders interdependency |
| Hjalager (2002) | Obstacles to tourism innovation processes and knowledge transfer |
| Novelli, Schmitz and Spencer (2006) | Networks and clusters as a way to improve tourism product for tourists specific requirements |
| OECD (2006) | Present tourism network as a tool to foster innovation by exploring external linkages and informal networks on tourism products and destinations |
| Cooper and Baggio (2008) | Refer the necessity of being collaborative in competitive destinations, by emphasizing the relationships that form a value-creation system |
| Plaza, Galvez-Galvez and Gonzalez-Flores (2011) | Conditions to orchestrate a tourism network |
| Pinto and Kastenholtz (2011) | Defend tourism network as a tool to manage and for marketing destinations |
| Strobl and Peters (2013) | Importance of entrepreneurial reputation of actors, strong ties' density and informal relationships between actors for destination network success |
| WTTC (2013) | Tourism has to adopt an holistic approach, which is necessary to look beyond competitive boundaries and to develop new collaborations |
| Hoarau and Kline (2014) | Tourism innovation processes can be fostered by co-creation model and knowledge sharing as tourism experience |

Appendix 2: Benchmarking: the World's Top 5 Museums and SMA

| Variables/ Museums | Smithsonian Museum | IWM Duxford | National Museum USAF | Aviation Center and Boeing Tour | French Air and Space Museum | SMA |
|--|--|--|--|---|--|--|
| Region/ Country | Washington/ USA | Duxford/UK | Ohio/USA | Washington/ USA | Le Bourget/ France | Sintra/ Portugal |
| Airport/ Aerodrome Location | X | X | X | | X | X |
| Museum Collection | 60,000 objects; > 1.75 million photographs; > 14,000 film and video titles | 200 aircraft, tanks, military vehicles and boats | > 360 aircrafts and missiles on display | Boeing 747s, 767s, 777s, or 787s being assembled | 19,595 items, including 150 aircraft | 46 aircrafts, 5,000 bibliographic assets, Flight Equipment and Uniforms |
| Gift Shop | X | X | X | X | X | X |
| Food Service | X | X | X | X | X | * |
| Meeting Areas | X | X | X | X | X | X |
| Interactive Exhibits | X | | X | X | X | NA |
| Dynamic Events Calendar | X | X | X | NA | X | NA |
| Educational Programming | X | X | X | X | X | NA |
| Air Shows | NA | X | X | NA | X | * |
| Public View's Restoration | X | X | X | NA | X | NA |
| Professional Tour Guides | X | X | X | X (only in English) | X | * |

Legend: * not available at the moment, despite having conditions to provide it; NA - not available
Source: The authors based on museums website

Appendix 3: Brief description of the main Portuguese Aeronautical Spots**Aero Club de Portugal**

The history of Portuguese Aeronautic began in 1909, when the pioneer Aero Club de Portugal (Lisbon) was founded by a group of Army's Officers to promote the aeronautic development in Portugal, thereby its use by Portuguese Army.

Its collection is mainly composed by aeronautical historical documentation, in its extensive aeronautic library, trophies and medals. Soon it will have the Memory Room. It also owns a fleet of 8 airplanes and 2 gliders to train people who want to become a pilot or pilots who want to specialise. They both operate in Tires and Ponte de Sôr Aerodromes.

SATA – Aviation Museum

SATA emerged in 1941 when its five founding members created the “Azorean Society for Air Travel Studies”, whose aim was to end the isolation of the Azores islands.

Its operational service took off on the 15th of June 1947, when a small Beechcraft aeroplane, symbolically named “Açor”, made the first commercial flight.

After seventy years of history and six decades of flying, SATA holds an extensive aeronautics ‘know-how’ and also gathers aeronautical antiques such as: used airplane objects in Santana’s Airport, which was the first airport of São Miguel island and remained active until 1969; tools; photographs and newspaper articles; airlines tickets and registrations; administrative documentation; some pilots, cabin crew and mechanics uniforms; stamps; a few SATA’s souvenirs; and some control tower’s material namely maps and measurement rules.

Museu Aero Fénix

The Aero Fénix was created on 25th July 1995 and its aircraft collection is located in the centre of Portugal (Santarém). It is a non-governmental entity with the purpose of preserving and disclose Portuguese aeronautical heritage.

To achieve its mission goals, it disseminates aeronautical knowledge, promotes activities and also organises national and international conferences, meetings and aeronautical exhibitions. The Aero Fenix’s collection integrates approximately a hundred of bibliographic assets including aeronautical historic documentation, scientific papers and technical manuals, mainly about their own airplanes models; about 50 aeronautical objects since the 40s; 9 classical airplanes. It promotes a dynamic way to explore its heritage, which is mainly supported by promotion of flying experiences for enthusiasts and also to assist flying acrobatic expertise. It also created the AeroNostalgia event, a Portuguese annual event, since 2004, which aims to concentrate classical aircrafts, exhibit them and performing an air show.

Portuguese Air Force – Sintra, Ovar and Alverca’s Air Museum nucleuses

The Museu do Ar opened on 1st July of 1971 in an old military aviation hangar, located in Alverca. The Museu do Ar belongs to the Portuguese Air Force (henceforth “FAP”) and reflects its concern on preserving its history and all its belongings that have been replaced by new technological aeronautical devices. Its mission is to collect, preserve and prepare its historic aeronautical assets for public exhibition.

However, as its assets list swiftly extended, Alverca museum exhausted its capacity. FAP needed to integrate another structure to exhibit its recent collected assets. Therefore, they recovered a hangar in Sintra with an area of 3,500 m² and in 2009 the Museu do Ar got another nucleus. Museu do Ar has a collection of 120 airplanes, some of them large; more than 10.000 inventoried antiques; tens of thousands items which are not accounted for; and also 8.000 reserved parts which belong at ANA and TAP collections (Araújo, 2013).

ANA Aeroportos – ANA Museum

The ANA (Lisbon Airports management firm) Museum opened in 2006, in the Lisbon Airport’s main entrance, in an exhibition area of 300m². With a collection assembled for over 20 years it comprises more than 2,000 pieces of recognised historical and scientific value, mainly flight traffic control equipment and their telecommunications, and a vast archive of supporting documents with over 15,000 photographs.

TAP Air Portugal – TAP Museum

TAP was created in March, 1945 and started operating with its first two 21 passenger DC-3 Dakota aeroplanes. In its second year it promoted its first pilot course to get into full operating capacity and in 1946 it opened its first route, between Lisbon and Madrid. After 18 years it achieved one million passengers and in 1967 it was the first European airline exclusively operating with jet aircrafts.

TAP’s collection counts with approximately 29 thousands of objects, mainly: 4,900 artistic assets; 23,600 bibliographic assets; and 155 scientific and technic items (Ramos, 2013).

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