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## NEW TECHNOLOGIES FOR THE ENHANCEMENT OF CULTURAL, MERCANTILE AND TRAVEL ITINERARIES. THE CASE OF OMAN

1. INTRODUCTION. – Following the recent Covid-19 pandemic, how it has impacted the tourism and cultural sector and how it has led the flows of visitors to be more inclined toward outreach tourism, several studies have been conducted in order to assess how to integrate new tourism routes aimed at better appreciation of national heritage and cultural assets (as will be indicated below).

The area of Southwest Asia, better known as the *Middle East*<sup>1</sup>, is a case in point, not only because it has always attracted niche tourism, generally linked to international exhibitions, sporting events<sup>2</sup> and new luxury tourism (Morazzoni and Zavettieri, 2022), but also in that it lacks a tourism of itineraries, of slow walks, of pilgrimages – with the exception represented by the great pilgrimage par excellence, the *hajj* to Mecca, and the Shiite temple routes in Iran (Morazzoni and Zavettieri, 2020a).

According to recent studies on post-Covid tourism in Arab countries (Almuhrzi *et al.*, 2020; Morazzoni and Zavettieri, 2021), a) Arab visitors (“insiders”) expressed a preference for interpretation that focused on their ancestors’ achievements, seeking an emotional connection with the site visited and particularly interested in oral interpretation, while b) Western visitors (“outsiders”) wanted explanations of Arab traditions, customs and history – essentially, they sought to place the heritage site within a cultural context.

The correct and complete interpretation of heritage thus aims to improve the appreciation and understanding of cultural events, customs, and peoples by visitors and inhabitants alike. Actually, in light of recent events of global reach, it’s essential to encourage and improve domestic tourism. Tourist itineraries can represent an excellent opportunity to improve some aspects of the tourist trajectories and, with reference to the insiders, to learn more about the history of their own country. Of particular interest in this regard is the case of the Sultanate of Oman<sup>3</sup>.

Oman has always held crucial importance because of its historic ports, particularly that of Sohar, which facilitated the transit of peoples through routes that became established trade routes (Morazzoni and Zavettieri,

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<sup>1</sup> It is interesting to point out that, in the geographical sense, the more correct expression to be used is Southwest Asia, which is increasingly gaining ground. *Middle East*, in fact, has been the expression used by Western powers since the 19th century to describe a rather vague geographic area that can also include North Africa. In fact, in English there is the acronym MENA, which stands for Middle East and North Africa. *Middle East* is often used to refer to the “Arab world” in general, although the region also includes non-Arab countries such as Turkey and Iran. It is not easy to define clear-cut boundaries of the *Middle East*. Sometimes it also includes Pakistan and Afghanistan, which historically, culturally and geographically are very different from the countries of Southwest Asia.

<sup>2</sup> Until the emergence of Covid, Qatar was emerging as a destination for cultural, educational, sports, and cruise tourism, in addition to being a key player in leisure and luxury corporate event tourism. High-impact global events are in fact driving the country’s tourism growth, and Covid may not prove to be a stopper in that regard. Indeed, Qatar has been hosting nearly 80 sporting events a year, and the schedule through 2023 appears to be still open. It should not be forgotten that the Qatari nation was the first country in Southwest Asia to host the 2019 World Athletics Championships and offers a wide range of authentic experiences with attractions that include state-of-the-art museums, galleries, public art installations, archaeological sites, fortresses, and tourism organizations and operators that create and implement interesting itineraries of the country (Zavettieri, 2021).

<sup>3</sup> It is important to specify that the writer conducted a nine-month postdoctoral fellowship from February to September 2020 at the Sultan Qaboos University (SQU) in Muscat. During this period, it was possible to prototype a tourism app on the Muscat Governorate, the purpose of which is to allow users autonomy of movement within the Governorate and the customization of tourist itineraries in order to travel according to personal needs and preferences. Precisely because of the materials collected for the creation of the app, at the end of the postdoctoral fellowship, a second project proposal (the one focus of this paper) was submitted. It was accepted but suspended immediately afterwards due to the worsening of the Covid-19 pandemic in Oman. Only recently (October 2022) the project has been resumed and is expected to start from August 2023 with the involvement of the University of Rome “Tor Vergata”, particularly its Geocartography Laboratory and some of its adherents, and the SQU University itself with its Remote Sensing and GIS Research Center, whose coordinator is Yaseen Al-Mulla, former postdoctoral supervisor of the undersigned.





2020b). Indeed, between the 8th and 15th centuries, among the various trade routes, Omani sailors crossed the Indian Ocean, circumvented the Strait of Malacca and finally arrived in southern China, with which it has always maintained fruitful trade relations. This allowed a steady development, over the centuries, of a sort of “maritime-commercial bridge” between the two civilizations. The city of Sohar, the main port hub for maritime traffic, was “the gateway to China” (Wilkinson, 1977, p. 887). Not surprisingly, in 1980, the Sohar ship, built in the city of the same name, retraced the stages of the ancient Silk Road to Guangzhou, China, in memory of the happy trading past. Trade between Guangzhou, Sohar and Dhofar peaked in 878 AD, but suffered setbacks until the early 15th century. However, amidst ups and downs, a new phase of friendship between China and Oman was reached (Tong *et al.*, 2017, p. 246) when the great Muslim admiral of the Chinese navy, Zheng He, led seven maritime expeditions to Dhofar and Hormuz causing Sino-Omanite trade relations to flourish again. These trade histories between China and Oman were reevaluated in the 1970s with the accession to the throne of Sultan Qaboos, who pledged to implement international relations, including those with China, restarted after an earlier interlude of tensions. In the late 1970s China began to adopt a less tense approach toward the Persian Gulf monarchies.

In addition, a first state of the art collection showed that the main Omani trade routes were linked to China, with which today, according to a wide literature (Han and Chen, 2018; Olimat, 2016; WU, 2015), cultural communications (as well as economic communications) are the foundation of friendly ties between the two countries: both nations are engaged in the improvement of cultural communication and cooperation on the basis of history. Some examples in this regard: 1) Oman actively builds cultural memorial facilities such as the monuments of “Sohar” boat in Guangzhou and the Zheng He Memorial Park in Oman to display the lofty history of maritime exchanges between two nations (WU, 2015, p. 10); 2) the exhibition of Chinese culture in Muscat Art Festival (China Culture, 2015); 3) the establishment of Arabic and Islamic Cultural Studies Centre in Peking University; 4) Chinese classes in Sultan Qaboos University; 5) establishment of Oman as the only stop in the Gulf and the Middle East for the Olympic torch travelling from Greece toward China in 2008. All these elements, essential for tourism, should be publicized and disseminated, and the implementation of an Atlas could be a valuable tool for this purpose. Indeed, China and Oman have maintained direct trade relations since 507 A.D. Whether in ancient or in contemporary times, China-Oman exchanges have yielded great achievements along the sailing path of the Maritime Silk Road.

Economic cooperation is the drive for sustainable development of friendly ties between China and Oman (Han and Chen, 2018, p. 5), which was the first among Arab countries to sell oil to China when it became an oil import country in 1993. Currently, the Sultanate is one of the major energy partners of China in West Asia and North Africa of China (United States Congress, 2013, p. 300). In the next few years Oman became China’s third largest oil export country and started to export liquefied natural gas to China.

The main object of the paper is the project proposal currently in progress that the writer has implemented for Sultan Qaboos University (SQU) in Muscat, to realize a cultural-historical Atlas, based on literature, to reconstruct the itineraries of Oman’s ancient trade routes with other empires, first among them the Chinese Empire, which shaped the Silk Roads that connected with Omani territories.

The project includes a number of objectives, which will be listed following a due introduction regarding the importance of water in a country with a mainly desert topography. Water has indeed traced the paths of trade, catalyzing the presence of the main elements traceable to the country’s natural and cultural heritage, and it has interfaced with technological and digital processes that will be discussed in the next paragraph.

2. THE ROLE OF TECHNOLOGIES AND WATER IN OMAN: A FOREWORD. – The Omani Mountain hinterland is characterized by wadis, valleys of rock masses sculpted and shaped by erosion, and the typical *aflaj* canals (Fig. 1), dug since ancient times and used to provide useful water for crops such as roses and garlic, to bring drinking water to the population of oases and villages, and, near prayer sites, to ensure the ablution ritual of the faithful. This ancient water management system has resulted in the *aflaj* network being listed as a UNESCO World Heritage Site (Al-Ghafri, 2018; 2008; 2006; Al-Ghafri *et al.*, 2007; Labbaf Khaneiki and Al-Ghafri, 2022; Morazzoni and Zavettieri, 2022).

The area is interesting not only because of the particular irrigation systems, but also because of the many other cultural assets present: Al-Hamra village, located between the Jebel Shams and the Jebel Akhdar, is home to one of the largest cave systems in the world; Bahla Fort is UNESCO World Heritage Site, but also Al-Nakhr, Al-Hajer, Al-Ghoul, Al-Manther, Al-Rahba, Misfat Al-Abryeen, Bimah, Al-Ghafat, Misfah are now recognized stops on walking and hiking itineraries. Enhancing these villages, as in the case of Misfat Al-Abryeen (Fig. 2), which has already reported international recognition for its work to regenerate the

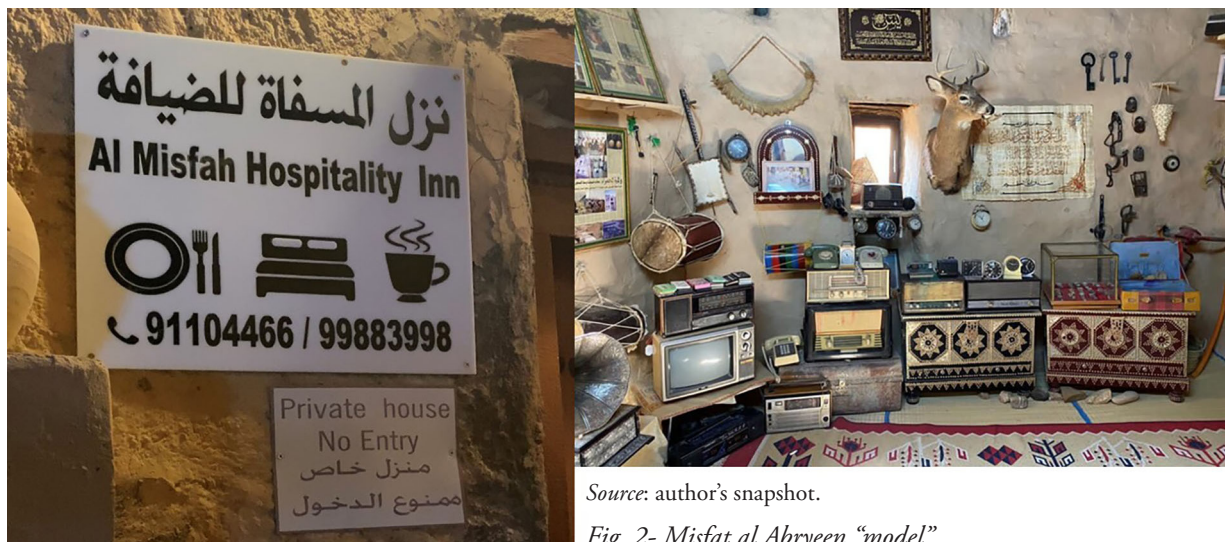
village<sup>4</sup>, means also enhancing the native vegetation for the intensive cultivation of various types of crops and for tourist activities such as camping, walking, hiking, trekking and climbing,

The demand for mountains as a “safe haven” and “healthy retreat” for the Omani population follows development processes that are far from depopulation phenomena and forms of hyper-tourism that have been over time the only model of development that can be proposed for the rest of the mountainous territories. The development of the Misfat al Abryeen model leads Oman to occupy a central position in terms of the presence of inhabitants, flows of culture, resources and local knowledge, both within endogenous and exogenous processes: the mountains are attractive first to local communities and then to outsiders (national and international tourism). The latter condition is in line with processes of de-urbanization, also amplified by contingencies related to the Covid-19 pandemic. In addition, new processes of heritage enhancement become the result of tourists’ involvement in the participatory tourism process. Indeed, the tourist’s approach to rosewater production or garlic harvesting provokes temporary imitative practices, an emotional involvement but, at the same time, tradition is no longer just the recovery of collective memory, as the past is actualized from below. As a result, alternative forms of sustainable heritage preservation are launched, materializing the multiple ways in which the past can be involved in the present, both personally and collectively (Morazzoni and Zavettieri, 2022).



Source: author’s snapshot.

Fig. 1- Falaj in Wadi Damm, Al Ayn, Oman



Source: author’s snapshot.

Fig. 2- Misfat al Abryeen “model”

<sup>4</sup> During the Global Forum on Technology, Sustainability and Humanity (17-19 October 2022, Muscat), in the session “Digitalisation and Innovation for Heritage & Culture”, coordinated by the writer, Misfat al Abryeen Village “model” was presented by Husni Al-Abri, representative of Misfat al Abryeen Village, UNWTO best tourism village in the world. For more details see video in the following link <http://globalforum.items-int.com/gf/gf-content/uploads/2022/10/Husni-al-Abri.mp4>.



In light of these premises, it is interesting to report some of the achievements in digitization and innovation for heritage and culture, mainly concerning the dematerialization of tangible heritage with open access, the construction of platforms for digitized culture and heritage, and the rematerialization of digitized content with blockchain. The goals achieved make governance capable of managing cultural heritage in an innovative way, and the importance of heritage enjoyment in a sustainable way for residents, tourists and day visitors is certainly recognized.

Fundamental, therefore, has been the implementation of digital proposals, which already exist and are accepted by the scientific community: the implementation of GIS-based applications to enhance internal and external tourism through customized itineraries (cultural, recreational, marine, mountain, etc.), such as the one implemented by the Remote Sensing and GIS Research Center of Sultan Qaboos University (Zavettieri, 2021) or even through the proposed Aflaj Museum, implemented by Nizwa University<sup>5</sup>, a collection of the history of tangible as well as non-tangible heritage. The museum will initiate a number of important considerations for the *aflaj* as cultural sites recognized by national and international bodies, used to achieve socio-economic and political goals, and stimulate narratives related to the identity of those living in the area.

These narrative practices allow tourists to enter local cultural and production processes. This is important also in light of the new participatory tourism processes: retracing the ancient routes of the Silk Road, the Spice Road or the Frankincense Road, which through GIS technologies can facilitate the reconstruction of the routes of ancient travellers, potentially leading to a cultural-tourist enhancement of mountain and inland villages.

Finally, as already evident in this section, it is important to mention how water represents probably one of the most important resources in Oman.

In fact, the topic of the *aflaj* reflects how, for thousands of years, humans have created structures and strategies for water management. Societies have been formed and structured there, as evidenced by the remnants of traditional water management systems widespread in North Africa and Southwest Asia. The Romans placed water management at the center of their civilization. River management was the main lifeline of the Chinese. On the Indian Ocean and along its coasts, the Silk Road, the Spice Road and the Frankincense Road endured for thousands of years until colonialism overthrew them and drew other maps. Yet, even today, all the greatest cultural works that can be counted among the wonders of the world and among UNESCO heritage sites rely mainly on the geography of the waters.

3. THE PROJECT: OBJECTIVES, TOOLS AND METHODOLOGIES. – The macro-objective of the project presented is to realize a historical-cultural Atlas, on a literary basis, in order to reconstruct the merchant routes and the commercial itineraries of antiquity following exchanges between Oman and other ancient empires. For its implementation, it was necessary to draw up micro-objectives, which are:

1. Recognition of the literary and historical state-of-the-art, to identify the main stages of the ancient markets of the merchant streets and the role of the Omani ports in the ancient trade markets.
2. Classification of the itineraries over themes (port itinerary, spice itinerary, silk itinerary, Portuguese itinerary, Sumerian itinerary, Akkadian itinerary, etc.).
3. Creation of an Atlas that collects all the itineraries, with specific clarifications of a literary and historical order, with re-photography paths aimed at comparing yesterday's landscapes with those of today and with insights and infographics that give clear directions to readers.
4. Dissemination of the Atlas and selection of some of these itineraries to propose them as new tourist itineraries to local tour operators and to the Ministry of Tourism, to diversify the tourist target and implement tourists flows.

The advantage of this project is that of favouring a spread of tourists throughout the Sultanate and not only on the now consolidated tourist destinations of the country.

The added value of the Atlas is fundamental in view of the new tourist scenarios that will open with all the events that the Ministry of Tourism of Oman is planning for the future development of tourism.

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<sup>5</sup> Again, during the Global Forum on Technology, Sustainability and Humanity, the Aflaj Museum "model" with Design and Concepts was also presented in the session "Digitalisation and Innovation for Heritage & Culture", coordinated by this writer, by Professor of the UNESCO Chair on Aflaj Studies-Archaeohydrology at the University of Nizwa (Oman) Abdullah Al Ghafri. For more details see video in the following link <http://globalforum.items-int.com/gf/gf-content/uploads/2022/10/GF-2022-Abdullah-Al-Ghafri.pdf>.

Oman is an exotic destination, rich in culture and nature, so the Atlas can help any traveler to discover its resources and uniqueness.

The methodological framework is structured as follows:

- desk analysis, to collect materials from Arabic and international written resources, photographs taken in different historical periods, comparison of literatures, photographic materials and types of trades (yesterday's and today's).
- field analysis, to assess the degree of accessibility and feasibility of the routes.
- construction of the Atlas through specific geographic technology products (GIS).

The final product, that is the Atlas, once disseminated, would lead not only to a replicable model but also, and more importantly, to an interdisciplinary reflection on heritage and cultural tourism.

4. THE ROUTES. – Regarding the types of itinerary, the list below summarizes some examples classified by:

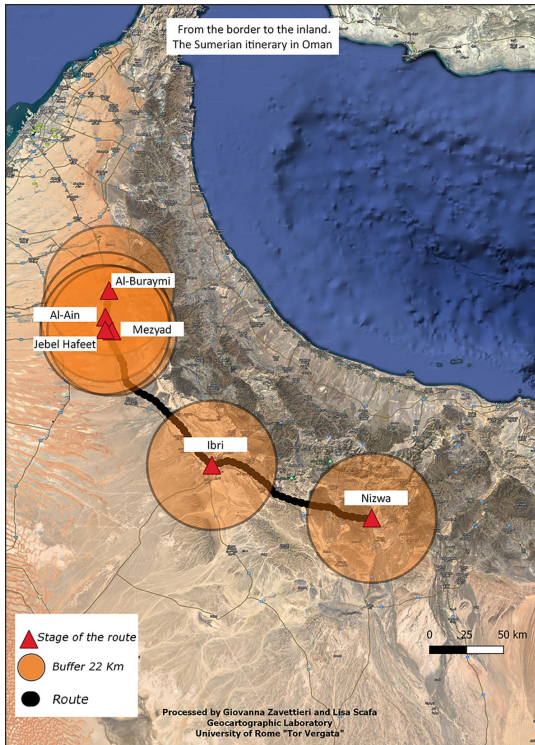
1. the *ready-made* ones, derived from volumes and manuscripts translated from Arabic and Chinese some of which are held in Omani national libraries, such as:
  - Chronicles of the Later Han Dynasty (an example of itinerary present in this volume could be: The way to Maghan: the shipbuilders' Oman-Sohar, Muscat, Sur);
  - Records of the Geography, New History of the Tang Dynasty;
  - The Itinerary of Suleiman to the Orient;
  - Gu Jin Qun Guo Xian Dao Si Yi Shu. This volume contains references to some cities in northern Oman that made up the famous maritime Spices Road';
  - The Records Of Various Countries, which documented the Weng Man Guo (Oman). The records in this book contain Oman's geographic location, customs, specialty, trade and monetary situation basically correspond with that in the Arabian historical books. The mentioned Wu Ba Guo in Zhao Rushi's book might be Marbat in today's Dhofar. The book also referred to the Nu Fa Guo, which many Chinese and foreign scholars consider to be Dhofar;
  - Golden Grasslands (in this case, an extra-Oman itinerary could also be created, which includes Oman, Bahrain and Basra).
  - Al Masudi's writings. His travels extended to Syria, Iran, Armenia, the shores of the Caspian Sea, the Indus valley, Sri Lanka, Oman, and the east coast of Africa as far south as Zanzibar, at least, and, possibly, to Madagascar.
2. those *to be reconstructed* on the basis of literary and/or historical sources:
  - sources that refer to the historical period during which Seljuk Turks tried to dominate Mesopotamia and Anatolia. It was a long period of war, during which the envoys from these areas to China were from the Arabian world, such as Jeddah, Maghera and Sohar.
  - sources that reconstruct the main paths of the frankincense trade in Dhofar. There are contents, such as in the Song Dynasty records, which contain phrases with clues on specific itineraries to carry out, like: "Frankincense, or land incense, is from the mountains and the valleys of the Dhofar regions in the Arabian world".

Listed below are some proposals for purely example purposes:

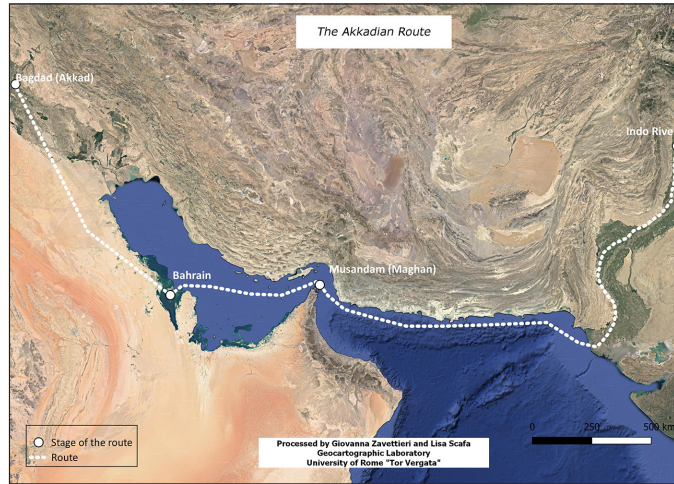
1. From the border to the inland – the Sumerian itinerary in Oman: Al Ain, Al Buraimi, Mezyad border, Jebel Hafeet, Ibri, Nizwa. Sumerian adventurers, who were exploiting the rich Omani copper sources, brought pots discovered in tombs of the contemporary Hafeet culture. Together with these, it will also be possible to include in the itinerary falaj irrigation systems, Mezyad fort, Jebel Hafeet Desert Park, and other tombs in Ibri (Fig. 3a). The 22-km buffer helps to understand how far a person could move from each leg of the route on foot in half a day.
2. When Oman was Maghan – the Akkadian itinerary: Indus, Oman (Musandam), Bahrain. The story of how Akkad (probably the current Baghdad), founded by Sargon, is linked to Oman through the Akkadian flows that conquered Maghan under the guidance of Sargon's successors (Fig. 3b).
3. The ports in Oman and the Maritime Silk Road – the silk itinerary: the Silk Road connected China and Europe on a special trading route in which some cities of the Middle East were essential stops/stages (Fig. 3c).

Below are some examples of preliminary mapping of some possible portions of the routes.





a)



b)



c)

Source: author's QGIS elaboration, Geocartographic Lab, University of Rome "Tor Vergata".

Fig. 3a-b-c - Proposals of itineraries based on literature already collected

5. BRIEF OPEN-ENDED CONCLUDING REFLECTIONS. – This paper aimed to introduce a project that is still in progress and whose goals will begin to be reached from next year.

The project of a digital Atlas becomes important not only for the revitalization of Oman, which can “break away” from elements of its traditional economy, often also far from the commonly known canons of sustainability, but also for local communities that can support in a participatory way the promotion of their traditions and the regeneration of their villages with a view to tourism participation inside and outside the national borders.

The Omani geo-cultural context lends itself to a diverse tourism demand, including new heritage and new luxury (Morazzoni and Zavettieri, 2022), due to its rich cultural heritage and pristine natural environment that is the star of the experience.

Research results already conducted (*ibidem*) have shown that new heritage practices and the introduction of glamping are creating a new tourism demand in the Omani territory. To date, the enhancement of the new heritage is also leading to local-tourist co-participation in heritage conservation (mountainous especially).

In the face of this co-participation of the local-tourist community toward cultural and environmental sustainability, the problem currently lies in the lack of formal regulations approved by policy-makers that set limits and rules for conservation, enhancement and land use. Therefore, the future effort must be to work strategically and in co-partnership to create specific regulations for sustainable tourism use of the Omani mountains, as well as technological-digital applications aimed at such preservation. Certainly, regulation to support sustainable development will require sacrificing those services and activities that may be unsustainable today. This needs not only participation “from below” (bottom up), but also new ideas, new creativity and new political laws and institutional regulations. Investing in the protection of healthy ecosystems is a strategy with significant benefits, but one that requires urgent preventive measures, also with the support of new technologies, in order to avoid hyper-tourism, economic and cultural morphogenesis, depopulation, etc.

For the continuation of the project and the achievement of the objectives reported here, please refer to future publications.

ACKNOWLEDGEMENTS. – The paper, although entirely written by the undersigned, is the result of a joint reflection work, matured within a variety of interdisciplinary and international research projects involving mainly Oman and Italy (in particular my colleague Monica Morazzoni and my former postdoctoral supervisor Dr. Yaseen Al-Mulla, Director of the Remote Sensing & Geographic Information System Research Center, SQU, Oman). Many of the reflections in this article are also the result of the stimuli gained from my experience on the Steering Committee of the Global Forum 2022, where I had the opportunity to collaborate with such esteemed personalities as Thomas Andersson, CEO of Organisation for Quality and Innovation Strategies (Qualies) and President of Water & Humanity, Oman; Sylviane Toporkoff, Founder & President of Global Forum, France; Ingrid Andersson, Vice-President of Global Forum and Senior Expert at IKED, Sweden; Abdullah Al Ghafri, Professor of the UNESCO Chair on Aflaj Studies-Archaeohydrology, University of Nizwa, Oman; Husni Al Abri, Repr. Misfat al Abriyeen Village, UNWTO best tourism village in the world, Oman, and many more.

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**SUMMARY:** The Sultanate of Oman is working on diversifying its production systems, with the aim of converting a hydrocarbon-based economy to one based also on tourism (Oman Vision 2040). In addition to established routes in Sino-Omani literature, identifiable with the trajectories of the Silk Roads and the Spice Road, a preliminary study revealed itineraries of the ancient peoples who transited Oman (Portuguese, Sumerians, Akkadians, etc.). Therefore, this contribution aims to realize a proposal, to be implemented through an international project, apt for the construction of cultural routes in Oman with high innovative value.

**RIASSUNTO:** *Le nuove tecnologie a supporto della valorizzazione degli itinerari culturali, mercantili e odeporeici. Il caso dell'Oman.* La presente proposta si inserisce nel territorio dell'Oman, paese che sta lavorando alla diversificazione dei propri sistemi produttivi, con la finalità di convertire un'economia basata sugli idrocarburi in un'economia basata anche sul turismo (Oman Vision 2040). Oltre a itinerari consolidati nella letteratura sino-omanita, identificabili con le traiettorie delle Vie della Seta e della Spice Road, dallo studio preliminare sono altresì emersi itinerari delle antiche popolazioni transitate in Oman (portoghesi, sumeri, akkadi, ecc.). Il presente contributo intende quindi realizzare una proposta, da implementare attraverso progettualità internazionali, atta alla costruzione di percorsi culturali in Oman ad alto valore innovativo.

*Keywords:* cultural itineraries, Oman, GIS

*Parole chiave:* itinerari culturali, Oman, GIS

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