

DEL CONVENTO A LAS CALLES: PRODUCTOS TURÍSTICOS RECIENTES A TRAVÉS DE LA GAMIFICACIÓN Y ESTRATEGIAS BASADAS EN LAS TIC

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Resumen

La transformación de la cultura del consumidor en la contemporaneidad ha llevado al doble movimiento de globalización y glocalización, en su aparente oxímoron: la promoción de valores e intereses globalizados, por un lado, y el aumento del valor de los activos locales como fuentes de desarrollo y promoción, por el otro, algo que es muy claro cuando se piensa en el turismo cultural y el papel diferencial de diversas formas de patrimonio. Esto nos lleva a la noción de diversas escalas de impacto y difusión, y las posibilidades de trabajar con ellas, en lugar de centrarnos específicamente en la promoción de productos turísticos internacionales o nacionales. En este documento, hemos tratado de analizar las formas en que dicha promoción turística puede llevarse a cabo con la ayuda de las TIC (Tecnologías de la Información y la Comunicación), especialmente en el contexto de la gamificación de la experiencia turística, en referencia a un proyecto en curso en la ciudad de Tomar. En el contexto, esto busca promover una conciencia del patrimonio más sostenible y diversa que pueda servir a una base turística dinámica, en lugar de centralizar los esfuerzos en la atracción principal (el Convento de Cristo y el Castillo Templario). Más aún, tenemos la intención de profundizar la discusión sobre la adaptación del producto turístico basado en agentes, en una perspectiva teórica de sistemas, tratando de derivar los diversos impactos posibles de las experiencias turísticas individualizadas, equilibrando los impactos económicos, sociales y culturales de varias TIC estrategias. Este caso de estudio abarca cuatro fases, comenzando en septiembre de 2017. Se utilizarán diversas técnicas de recopilación y análisis de datos (a saber, observación, encuestas y análisis documental), con la presentación de los resultados finales a principios de 2020.

Palabras Clave: Culture, Gamification, Heritage, ICT, Tomar, Tourism.

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FROM THE CONVENT TO THE STREETS: RECENTRING TOURISTIC PRODUCTS THROUGH GAMIFICATION AND ICT BASED STRATEGIES

Abstract

The transformation of consumer culture in contemporaneity has led to the double movement of globalization and glocalization, in their apparent oxymoron: the promotion of globalized values and interests, on one hand, and the increase in value of local assets as sources of development and promotion, on the other – something which is very clear when thinking about cultural tourism and the differential role of various forms of heritage. This points us to the notion of various scales of impact and dissemination, and the possibilities of working with them, rather than focusing specifically on promoting international or national touristic products. In this paper, we have sought to analyse the ways in which such touristic promotion can be undertaken with the help of ICT (Information and Communication Technologies), especially in the context of *gamification* of the touristic experience, referring to an ongoing project in the city of Tomar. In the context, this seeks to promote a more sustainable and diverse heritage awareness that can serve a dynamic touristic base, rather than centralizing efforts on the main attraction (the Convent of Christ and Templar Castle). More so, we intend with it to deepen the discussion over agent-based touristic product adaptation, in a systems-theoretical perspective, by trying to derive the various possible impacts of individualized touristic experiences, balancing the economic, social and cultural impacts of various ICT strategies. This study case covers four phases, having begun in September 2017. Various data collection and analysis techniques will be used (namely observation, surveys and documental analysis), with the presentation of final results aimed at early 2020.

Keywords: Culture, Gamification, Heritage, ICT, Tomar, Tourism.

1. INTRODUCTION

Economic approaches to territorial growth have in the last 20 years become increasingly focused on the role of local resources in promoting sustainable development, namely in what concerns regional innovation systems (Doloreux & Gomez, 2017). This has reflected in a shift in cohesion policy from organisms such as the EU towards intelligent, smart and culture-based approaches to address low growth rates and improve social systems dynamics (Costa, Vasconcelos, & Sugahara, 2011; European Commission, 2011), with emphasis put into re-designing tourism towards a more participative, engaged and creative experience (Costa & Lopes, 2013). Tourism today is seen as a plural activity engaging technical professionals as well as consumers, stakeholders at various levels, and knowledge institutions in designing the most efficient way to make use of the local cultural resources.

However, due to the disciplinary and practice-based orientation of much of the research towards such themes, certain conceptual questions continue to be relevant: what is "authenticity", "cultural heritage" or "interpretation"? How can one think about the role of tourists-as-consumers *viz* tourists-as-experiencers in selecting what is consider vital to the sustainability of culture, and what role should be afforded to them in making those decisions? The difficulty of such themes lies in part in their double essence as both positive and normatively inclined research questions, both begging an analytical approach and the designing of alternatives based on analytical conclusions. In particular, the role of tourists as agents becomes particularly complex as the analytical tools at disposal – either from an economic perspective that focuses on net gain to the territory, embedded in social and cultural surpluses, or from an anthropological perspective that values historical modes of knowledge (re)production – seem to fail at capturing notions such as "meaning" in its various operations. This has indeed been the focus of a marginal field of study on the "semiotics of tourism" and "semiotics of culture", with such central works as Urry's (2002) or MacCannell's (1999), as well as others (Metro-Roland, 2011; Waterton & Steve, 2014), although the semiotic-systemic articulation of the work seems to have been largely missed in their larger impact.

In this paper we seek to address this latter issue, hinting at a possible research program oriented towards urban cultural systems *qua* meaning-production systems, in their touristic impact, oriented towards developing more optimization. Through an analysis of the current state of such systems we intend to approach the role of ICT as a "stabilizer" of touristic meaning with ramifications for the design and management of cultural dynamics towards a socially sustainable reality, as pointed out by numerous authors (Du Cros, 2001; Karanasios, Sellitto, & Burgess, 2015; Katsoni, 2011; Monod & Klein, 2005). We start by tracing the differential aspects of local and global tourism and considering the role of "tourist networks" related to these aspects, as forms of tourism promotion hinged on a semiotic matrix. We then attempt to map tourism *in situ*, focusing on the case of the city of Tomar in Portugal, as a communicative system between agents and object-relations (here taken as the compound of material objects and actual relations as they present to the tourist phenomenally), and hinting at the possibilities of gamifying such experiences, based on a pilot-experience in our study case, towards a more agent-based approach that considers both tourists and stakeholders as crucial elements in tourism-making. We end with some considerations on the medium and long-term impact to the cultural dynamics of cities of tourism.

2. BETWEEN SCALES: LOCAL TOURISM AND GLOBAL OPPORTUNITIES

The notion of “scales” of tourism is intrinsically borrowed from the terminology often used in urban studies to differentiate between various forms of urban conglomeration: their relevance, ramification and impact in the territory, as through Christaller (1966) as others (Asheim, Smith, & Oughton, 2011; Perroux, 1991), the size and economic diversity of their hinterlands, their relevance within migratory flows, as well as myriad other criteria have served to separate “big cities” from “small cities”, and “global cities” from apparently “non-global cities” (Schiller & Çağlar, 2009). Such definitions are, however, never as clear-cut as the typologies attempt to make them, such as Glick-Schiller points out: even cities with little to no presence of global capital flows will possess some level of diversity caused by cultural transaction, and as many studies have found, even in cities with apparently no size to justify it, phenomena of gentrification take place (Schiller & Çağlar, 2009).

Such notions may help in categorizing “local” tourism apart from “global” tourism as that which bears a different scope, has a different role in the tourism networks, and which bears cultural or natural capital which is differentially understood within and without certain scales. We can attempt to define “global tourist places” as those that can and do attract individuals from all parts of the world, which are integrated into deep touristic networks as the main attractions of a given region (such as a country), and thus serve as a metonymic device for that region (i.e the city of Lisbon, for example, can serve as the metonym of Portugal). The characterization of “global” serves merely as a placeholder definition of something which is intrinsically related to a scale of such places: one might consider Lisbon one such location within a global tourism network, but clearly it has less of a global appeal in our current situation than places such as the Taj Mahal or the Big Ben, and bears no similarly universal symbol.

This points us to the first important feature we would like to note: that a location’s possession of cultural capital (which we will abstain here of properly defining: for a sufficiently close description, see Bourdieu (1986)) does not necessarily imply its valuing in all tourist networks. The city of Tomar – to which we will refer throughout the paper – may be seen as one such case: it possesses a relatively broad number of cultural assets, both material and immaterial, yet does not attain the same status as other cities by a number of presumed reasons – its relative distance from the main tourist place (Lisbon), its minor role in the narrative of the Discoveries (*Descobrimentos*), and its small size which provide relatively few distinct attractions.

What one needs to consider, however, is that such a positioning within the tourist networks related to a country does not necessarily imply that the tourism that does take place is not in itself crucial for a determined region surrounding the touristic area (the “hinterland” of sorts). The context of post-industrial development has marked some cities as global and intricately woven into information flows (Castells, 1996; Harvey, 1990; Sassen, 2005), and precipitated a surge of migration to them has been in turn responsible from draining many small towns especially in the countryside of economic resources, whether of capital or labour (Ferrão, Henriques, & Neves, 1994), and led to tourism becoming a major, if not the most relevant, source of income (Portugal, 2007). The question of how to promote such touristic endeavours has then all the social and economic weight one may attribute to region-bound economic activities, but adds the concern with the maintenance and revitalization of cultural values (Richards, 2016; Russo, 2002).

Such a question is not one without many subquestions and answers, and which requires multiple approaches to get at any plausible answer. But in doing so it urges us to a more primary question, which we will attempt to define: what exactly happens during tourism that transmits value, and how can such value be added by external operations of management? One can in a way consider two sets of plausible "actors" (in a specific sense which will soon become clear) within the context of tourism: agents, specifically touristic agents seeking to gain cultural capital (which, in line with Bourdieu's notes, they want to levy within their cultural fields to gain a higher social positioning and the implied mechanisms of economic compensation (Bourdieu, 1986), and objects, which bear cultural capital (but, naturally, only insofar as an external meaning-giving population exists to consider it as such).

One can, simplistically, define that individuals seek to gather cultural capital from the objects, using sense-data gathered from it. But that definition forgoes what may be the central tenet of the tourist experience, and in fact, of all urban phenomenological experience: that individuals transact meaning, or more specifically, they attribute a meaning to an object-as-sign, by interpreting it, according to their matrix of interpretation gathered through education and cultural knowledge, that the object has its own matrix of interpretation or matrix of meaning, and that in doing so they are implicitly contributing to change both their and the object's matrices (Almeida, 2018 *forthcoming*); and that the individuals are motivated by specific forms of cultural capital which they seek to gather, not blindly by a desire for all the forms of capital which are present in the field (i.e in a place like the Big Ben, the cultural interest of the time-piece may be far surpassed by its metonymic value for London, or its architectural and social interest as a Victorian piece of British history). The notion of satisfaction with tourism, a notably complex concept within any field to which it is applied, can find here an approximate measure in one of two possible scenarios:

- **Semiotic confirmation:** the individual seeks in the context the specific capitals which he was looking for, and considers that the investment accounts for the acquisition of such capital;
- **Semiotic surprise:** the individual seeks in the context both the capitals which he sought for and others, or otherwise more valuable capitals within the fields he sought to intervene in, and considers the investment more than justified.

In both cases the individual leaves the system satisfied; the opposite cases, wherein the individual feels *deceived* (wherein a certain capital he sought was not met with sufficient) or *underwhelmed* (the capitals in general were subpar to his expectations) result in negative satisfaction. Since it is not directly possible to estimate the value of different and novel capitals for individuals, one can work, for now, on two of these analytical scenarios (the individual is either confirmed or deceived in his expectation); however, as we will see, the other two scenarios play important roles in designing the actual systems to optimize tourist satisfaction by providing entropy-increasing mechanisms.

Here one is quickly presented with two possibilities: the first, to work externally, that is, promote the image of a given place within the touristic networks – which amounts in many cases in positioning the cultural capital of the city, embodied in its objects, higher in the fields to which they respect within certain socio-demographic cuts and territorial positionings (aiming at promoting it to a "target audience"); or alternatively, seek to maximize the experience of those individuals which are imbued within the very system, by trying to promote in them as

much satisfaction as possible through targeting the way they interpret and are attracted to specific elements of the system. It is this second option which we consider here, and the sort of issue we attempted to optimize through optimizing the interpretation, that is, relevant semiotic clues that stabilize meaning.

This follows in line with many research on tourism which points to the importance of knowledge acquisition for cultural tourism (Chiang, Wang, Lee, & Chen, 2015; Prada-Trigo, Gálvez, López-Guzmán, & Loyola, 2016; Sidonia & Cristina, 2013), hinging however on the assumption that the knowledge acquired is then used as a token of distinction within relevant social groups. This is merely a hypothesis which we set out, and should be viewed carefully, and tested empirically by attempting to analyse the impact of cultural tourism experiences on the social and cultural positioning of tourists, for instance, differentiating groups of individuals based on their visit of specific cultural sites. For this work, we adopted the hypothesis that indeed individuals act upon this way, for simplicity's sake (given that it is obvious that this is not a sufficient description of tourist short and long term motivations with tourism – leisure playing a major role). However, even if the hypothesis were to be wrong, the rationale would still be valuable, as presence of localized interpretation mechanisms is pointed out as a relevant element in tourism satisfaction (Uzzell, 1989).

The reasoning for this is quite simple: if individuals proceed in interpreting cultural objects through cues, the possibilities of such interpretation, framed in a given modality (a specific form of the object presenting to the individual – in simple terms, one can think of this as a “mindset” with which the individual approaches the object, though one should be careful not to confuse modality with a mental concept), are limited by the information they can gather, and that in turn hinges upon, for instance, verbal and visual clues provided by heritage interpretation. This interpretation seeks, as many authors note (Monod & Klein, 2005; Moscardo, Fesenmaier, Uysal, & O’Leary, 1999; Uzzell, 1998), tell us, to convey meaning over certain relevant features and meanings in a given context, especially in trying to guarantee the representation of certain populations and social factors within the touristic experience; however, as these studies also point out, the nature of this procedure should not be seen directly as a technical effort carried out with the *best* ideal informational auxiliary in mind, but also as a participatory tool that seeks to maximize the amount of information that it carries about features deemed relevant by a population of interest (such as the local population). We would perhaps not directly subscribe, given the interest of also preserving optimization for tourist expectations, but the thought of making it a dynamical process with multiple stakeholders is indeed worthy of note.

By optimizing information, we seek to optimize, in fact, *informational entropy* (for its theory of informational definition, see Shannon (1948)). This notion has far reaching implications, being in fact, nothing more than a qualitative variation index that works for semiotic processes, but allowing for intuitive analysis of certain qualitative effects. Entropy means, in short, how varied a system is in terms of the meanings it confers to a given sign, or vice-versa, for each given sign and meaning. A touristic system implicitly needs a certain degree entropy – null entropy would mean, to use a mathematical descriptor, an idempotent system, whereby one instance of semiosis would be equal to each and any other, and no change would exist (i.e. every individual would interpret the same things in precisely the same way). Such a system would not confer any interest for tourism, for it could be presumably described with

auxiliary communicative systems (such as language): and thus, a single visitor would render the whole touristic system inoperable, as they could simply convey their experience directly. In the other extreme, a very entropic system would imply that no consensus or little consensus could be found between visitors, which would mean that its use within cultural fields as a token of distinction would be extremely limited if not non-existent – or, even if our working hypothesis is not true, such a system would likely result in conflicting views between tourists, less usefulness for social distinction, and the understanding that the tourists had been “lied” to. Optimizing entropy means in this sense to make individuals find what they look for in the system (entropy-diminishing operation) and at the same time to increase the number of semiotic processes the individual has knowledge of (entropy-increasing operation). The specific role played by interpretation in itself as a source of entropy-reduction and entropy-increasing mechanism is described at length in Almeida (2018), *forthcoming*; here we concern ourselves mostly with the system we have developed as a support for traditional interpretational mechanisms, namely, the use of gamification.

3. GAMIFICATION OPPORTUNITIES

Gamification consists in the use of game-like mechanics in non-game contexts (Deterding, Dixon, Khaled & Nacke, 2011). Whilst the concept is not new, the rise of ICT has seen a surge in interest and applications of the technique.

The opportunity to implement gamified systems in Tourism is very clear: one could in many ways turn the tourist into a player within a certain context of game (Tourism Gamification, see Xu, Weber and Buhalis (2013)). However, the risks of implementing gamification in contexts such as culture is a certain drawing away from the relevance of the cultural value at hand; in general, we have proceeded with caution to maintain a neutral approach, by developing tools which only enhance, rather than substitute the development of tourist experiences (for instance, the creation of point-systems which could create alternate incentives to experiencing the tourist system in a given way – although certain variations of this idea are discussed further below).

The system has been implemented as a partnership between the authors of this paper, the Polytechnic Institute of Tomar and the Tomar Town Hall, specifically with the Culture and Tourism departments of the latter. It was divided into several phases of implementation, with the first phase fully completed and the second phase in its last stages of preparation. We will discuss each of these in detail:

3.1 First Phase

The first phase of implementation, which occurred from January to September of 2017, focused on developing QR codes and audio-guides to promote tourist accessibility and information. Noticing the lack of adequate interpretation for most of the built heritage in Tomar,

⁵ We assume in this respect that a system’s incapability to be transmitted through auxiliary communication counts towards its entropy, that is, the specific features that the tourist experiences in the system (whether a specific lighting of a building or the smells coming from food stalls) make a difference in interpretation – for further details on this definition of entropy, cf Almeida (2018), *forthcoming*.

this sought to promote a more flexible approach to cultural content production. The QR Codes were developed with the the QR code Monkey tool, and the content was produced by the students of the Masters in Digital Content Production of the Polytechnic Institute of Tomar; the audio guides were recorded through with the use of a digital recorder Zoom H4nSP and in an amateur studio (Marques, Lopes, Almeida, & Simões, 2017).

3.2 Second Phase

The second phase has been carried out through September 2017 and is expected to be concluded in April 2018. It was divided into two foci: an analytical understanding of the present touristic system, and the development of an APP that optimized tourist paths and attraction choices based on previous selections. This sought specifically to promote a more interactive and individualized experience of the touristic system by offering the tourist the opportunity to select their own paths based on two parameters: thematic interest and available time. In this way, a tourist who is only interested in the touristic elements with relevance for the history of Portugal, or with religious meaning, elements with relevance for art history of Portugal or even specific modalities such as “windows” or “store-fronts” could select the modalities in which they were most interested.

The thematic modalities of touristic experience followed in line with the idea of “tourist routes” specialized under a specific theme and were gathered as one of the products of the analytical efforts in this phase. “Cultural (and natural) heritage can be used as a strategy of touristic opportunities’ restructuring since tourist activities generate sustainability mechanisms and specific spaces that engage cultural expression. We underscore heritage here as the baseline resource that gives rise to tourist attraction and the continued creation of new cultural products” (Costa & Lopes, 2017). They were gathered by deciding on the average relevance of the themes pointed out in a small structured interview to local inhabitants, specialists in the history and culture of Tomar and online content analysis of websites focusing on tourism in Tomar. The resulting modalities which have been put up for beta-test were the following (Table 1):

Table 1: Thematic modalities

1. Architecture
2. Portuguese Medieval History
3. Portuguese Discoveries and Renaissance
4. Jewish Presence in Tomar
5. Art History and Fine Arts (Painting, Sculpture, etc)
6. Portuguese National History (as a whole)
7. Templars
8. Local/City History and Culture
9. Religious Tourism
10. Natural Beauty and Green Areas

Each of these modalities was then presented to specialists in the area of cultural and local history, who were asked to score each of the signs previously identified in the first phase as relevant according to each modality, from 1 to 5 – for instance, putting a 5 on the Templar-

Convent of Christ cell and a 1 in the Architecture-Mouchão cell, so as to qualify them according to relevance. The intrinsic difficulty of this task for certain signs (such as the São João Baptista Church) led the need for systematic analysis of the signic entropy of these modalities (that is, the qualitative variation of signs associated with each modality). This has been recollected as another product of the thesis of one of the authors of this paper, and will serve, before the implementation, to smooth out the scores: modalities with a high entropy tend to mean that they are interpreted over a wide range of signs, meaning that scores should be "smoothed out" (in the case at hand by reducing one standard deviation unit from elements above the mean and increasing one standard deviation from elements below the mean); whilst modalities with a low entropy tend to mean that they are interpreted over a small range of signs, meaning that scores should be "sharpened", in this case, by operating contrary to the previous case. This process of score-optimization will be carried out in relation to social network analysis of the meanings attributed, to make sure that no outliers are excessively smoothed or sharpened (i.e. that a sign with low entropy within a modality with high entropy is not excessively decreased). At the end, the scores will again be submitted to the partner organizations and specialists for validation.

3.3 Third Phase

The third phase, to be implemented from April 2018 to December 2018, will seek to optimize the app to provide not only selected thematic routes, but also optimization of the specific interests of the tourist *in situ*. Here we intend to cast away the unreasonable assumption that the tourist already knows what he is looking for before coming to the system and beginning his tour, and offer the possibility of personalized tours based on previous selections (i.e. an individual who has been to Santa Maria dos Olivais and to Igreja de São João Baptista, in certain elements of these attractions, will have more interest in going to medieval and gothic architecture elements next). This seeks to further optimize tourist selection, and provides the first hint at gamification, by allowing the individual to receive personalized information, based on his behaviour: for instance, tourists who show in the first three or four uses of the app to spend a long time reading the explanations, or to prefer visual explanations, will be showcased these interpretational mechanisms further in next visits.

The algorithm developed seeks then to adapt the routes to distance, time available and thematic interest of the user, whilst at the same time gathering a great amount of data which can be useful for scientific and management applications, namely in advancing tourist studies beyond the reach of traditional methods of data collection. Given the computational complexity associated with this task, a possible implementation is the use of machine-learning neural networks which capture the adequate parametrization of each tourist in each given iteration (i.e. producing the most adequate suggestion based on the parameters it possesses). The inherent diversity of tourist experiences caused by this will produce a fine-tuned mechanism to manage the semiotic entropy of the system, making sure that individuals acquire the information they seek as well as some more, without either oversimplifying or overcomplicating tourist experiences.

The usage of tourists, via geographic localization, can also point to new signs to be included, as well as new modalities of use (for instance, noticing that certain routes are very common and noting that tourists mention specific elements, such as windows or lampposts as relevant items of interest). This phase will also see the diversification of elements considered

as touristic, both through the introduction of immaterial heritage, and through the use of creative tourism – that is, the integration of cultural and creative industries into tourism, engaging tourists with local cultural and creative productions and widening the *foci* from strictly conventional forms of tourism to more diverse and alternative approaches to tourist experiences.

3.4 Fourth Phase

The fourth and most ambitious phase of the project will take place from January 2019 to the end of the year 2019, and will seek to fully implement gamification in this system, as well as introduce a participatory mechanism by part of tourists and population alike. The objective is to create and promote meaningful, stimulating and immersive experiences that strengthen place-relationship and can engage tourists’ memories. As Bulencea and Egger (2015, p.25) mention “the provision of memorable experiences in a highly competitive market situation is seen as essential by academics and practitioners alike”. In this line, we envision multiple possible courses of action, that will depend on initial data of previous phases, but will most likely include the use of Augmented Reality, game design (turning the context of cultural exploration into an educational game of sorts), geocaching mechanisms amongst similar initiatives that we hope can spring up from the local population. In this sense, besides data collection we will hold a panel in early January 2019 with local stakeholders from different social backgrounds in order to prime them and gather their opinions on the project. More than a simple consultation, this will attempt to raise awareness at the systemic roots of tourism, and try to create momentum over the social impact of these strategies and how best to adequate them.

4. SOCIAL AND CULTURAL IMPLICATIONS OF GAMIFIED TOURISTIC SYSTEMS

Through the system described earlier, our stated intent – to optimize tourist experiences – seems to indeed be possible, provided that the assumptions and the specific working of the system goes as planned. The question here then becomes: what impacts can such a system have in social and cultural terms?

The question is far-reaching and can only here be answered very pre-emptively. It is our intent, in the development of this project, to develop computational modelling that will assist the continuation of the project, so as to make it as socially and culturally viable as possible, by testing out wrong assumptions and workings of the project – so in a sense, all the former description of the project is contingent upon this (relatively complex) study of impacts and factors. These factors focus specifically on three clustered areas: the economic benefit for the region, in terms of Gross Added Value by the industries adjacent to tourist-visiting (food, hospitality, night-life, artisanal products, etc); the impacts for local population of increased touristic presence; and the cultural impacts in terms of preservation, historical meaning and local representation.

The first of these questions seems by far the easiest to analyse. We can estimate that through optimization of tourist experience, as well as associated marketing to smart tourism,

the increase in economic flows should come as a direct consequence of two tendencies: increased volume of tourism (as a result of “willingness to recommend”) and increased willingness to pay. The first derives from the way we define tourist-pull and push in the case of small and medium towns – the case of Tomar being exemplary in this – in which the main attraction of the country has already been visited and the tourists are driven mostly by recommendation, word of mouth and suggestion. The second relates to the relationship between tourist satisfaction and his evaluation of willingness to pay, whereby more satisfied tourists will be more likely to acquire goods, as well as be available to pay fees for conservation and similar efforts, allowing greater allocation of economic resources to those areas which are severely under-funded (Huang & Satchabut, n.d.).

The more sensitized questions of the social and cultural implications however should be seen with care: rather than embark on a clear defence that such an app can promote social participation in tourism (our last section points it as a possibility, but the inherent complexity of this requires much further analysis). The preliminary analysis based on observation and interviews with individuals living in the areas with points of touristic impact indicate that the setting is staged to go in many possible directions: tourism can indeed promote stronger community bonds over a shared sense of cultural identity, by promoting that identity based on their own understanding, but the increase in touristic volume can likewise result in economic and cultural gentrification which drives local business further away from the historical center, and promotes an economy and social fabric (employment and social security) which hinges solely upon tourism. Seeing how cases in Portugal have evolved in Lisbon and Porto, we intend to monitor these effects closely by assessing the development of enterprises, and in further projects, we intend to work with small and micro companies towards articulating economic opportunities. The risks of cultural gentrification, in their harder definition, should in turn be conceived as the risk of the local population’s history and memory being shifted away, through a touristic “gaze” (Urry, 2002) or the production of “staged authenticity” (MacCannell, 1999). This is the rationale behind the implementation of the last stage of our work, which seeks to promote more contact with the local population, in partnership with local initiatives for cultural preservation, to assure that the more immaterial assets which are part of the tourist interest and which underlie the local population’s valuation of tourism remain accounted for and preserved. Towards this end, the engagement with local cultural and creative industries seems crucial, in their effort to salvage the local specificity in promoting their products, making them a valuable asset in maintaining the normal dynamics of cultural evolution expected – which, as we hypothesize in the models that are being developed, could likewise delay or even forgo the reduction of interest in the locality due to saturation of the market.

As a last point, we would like to note that optimization of tourist systems can only produce these results if it is adequately supplemented with a focus on the pull-system, requiring promotional and situational designs targeted at making places like Tomar more attractive overall – as one can imagine that such a system as that which we have attempted to develop can and should be emulated by adjacent regions, making the differentiated approach less salient.

5. CONCLUSION

Tourism, as other areas of business should seek to follow in the modernization and evolution of ICT, promoting its structures and creating diversified offers that attempt to increase tourist satisfaction (Marques, 2016). Overall, tourism specifically in Portugal has been defined as a growing sector and one that requires progressively more differentiated value offers to be attractive in small and medium sized towns with high levels of cultural capital which remains overall under-valued and under-exploited. These efforts at using ICT technologies have been the focus of much of the management and interpretational efforts of the last decades regarding touristic systems, although we can identify some analytical and monitoring gaps which we have attempted to address.

Through this case study, we attempt to use ICT and gamification strategies to promote the city of Tomar, as well as further the discussion on the implications and analysis of touristic systems by providing both methodological and management tools for optimization, paying close attention to the economic, cultural and social implications of such systems for the wider urban context.

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