

**“WINE EXPERIENCE APP”: CASO DE ESTUDO DE UMA INOVADORA
APLICAÇÃO PARA O ENOTURISMO E PATRIMÓNIO CULTURAL
“WINE EXPERIENCE APP”: A CASE STUDY OF AN INNOVATIVE
APPLICATION FOR WINE TOURISM AND CULTURAL HERITAGE**

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Resumo

O Projeto de I&D “*Wine Experience & Sensations – Wine Heritage & Culture Explorer in Tejo Region*” tem como objetivo valorizar a atividade turística vitivinícola da região do Tejo, do ponto de vista da oferta, valorizando-a para atrair e cativar uma maior e melhor procura.

Neste contexto, o aplicativo e sistema ‘*Wine Experience*’ foi desenhado para interagir e criar um ambiente imersivo com os visitantes/turistas, para mostrar, valorizar, dar vida e uma dimensão intemporal às rotas e pontos enoturísticos, património histórico e cultural de interesse das Adegas Regionais/Entidades/Operadores.

O aplicativo e o sistema ‘*Wine Experience*’ estão no estado da arte do desenvolvimento web e de aplicações, com uma interface que ilustra a noção de “ideia para o produto”, criada numa abordagem de tomada de decisão criativa e inovadora para satisfazer as necessidades dos clientes/visitantes/turistas.

O protótipo obtido foi avaliado e provou ser uma solução boa e interativa que atendeu a todas as necessidades e interesses definidos com um custo-benefício aceitável para todos os *stakeholders*.

O aplicativo e sistema ‘*Wine Experience*’ apresenta um valor agregado diferenciado que permite atualizações e novas funcionalidades de acordo com as necessidades, especificações e modelo económico da Adega/Entidade/Operador.

Palavras-Chave: criatividade e inovação, enoturismo, património cultural, aplicação móvel.

Abstract

The R&D Project “*Wine Experience & Sensations – Wine Heritage & Culture Explorer in Tejo Region*” has as objective to valorize the wine touristic activity of the Tejo region, from the point of view of the offer, enhancing it, in order to attract and captivate a greater and better demand.

In this context, the ‘*Wine Experience*’ app & system was designed to interact and create an immersive environment with the visitors/tourists, to show, value, give life and a timeless dimension to the wine touristic, historical and cultural heritage routes and points of interest of Regional Wineries/Entities/Operators.

‘*Wine Experience*’ app & system are in state-of-the-art of web and application development, with an interface that illustrates the “idea to product” notion, created on a creative & innovative decision-making approach to satisfy the customers/visitors/tourists needs.

The prototype obtained was evaluated and proved to be a good and interactive solution that met all the defined needs and interests with an acceptable cost-benefit for all stakeholders.

The 'Wine Experience' app & system present a differential added value that allows the addition of updates and new functionalities according to the needs, specifications and economic model of the Winery/Entity/Operator.

Keywords: creativity and innovation, wine tourism, cultural heritage, mobile app.

1. INTRODUCTION AND RESEARCH CONTEXT

This paper presents a real case study that exemplifies the notion of “idea to product” of an innovative mobile application for wine tourism and cultural heritage, included in the R&D Project “*Wine Experience & Sensations – Wine Heritage & Culture Explorer in Tejo Region*” (<http://wineexperienceandsensations.com/>) that has as objective to valorize the wine touristic activity of the Tejo region, from the point of view of the offer, enhancing it, in order to attract and captivate a greater and better demand.

The 'Wine Experience' system developed by ISLA-Santarém and Amplified Creations aims to show, value, give life and a timeless dimension to the wine touristic, historical and cultural heritage routes and points of interest of Regional Wineries/Entities/Operators, through a mobile application (for iOS and Android systems) and the corresponding responsive website.

Like all informatics' projects it comes to satisfy a basic visitor/tourist need, defined as 'Where are the wine touristic points of interest in the Tejo region?' and 'What kind of information should be available for the visitor/tourist?'

Based on these questions and making an internet research about possible applications, it was verified that there aren't any satisfying applications that could answer or satisfy the visitors/tourists properly. Thus, the research problem was defined by three questions: 'What could be done to change that?', 'What are the possibilities available?' and 'What type of resources would be needed?'

To solve this problem, it was decided to use a creative & innovative decision-making approach, that could clarify all the elements needed to be taken into consideration to inform and interact with the visitors/tourists with the focus on identity, image and a clear, modern and distinctive communication of the regional wine tourism culture and heritage.

2. CREATIVITY AND INNOVATION

In the early twentieth century, with the emergence of psychology, the concepts of creativity began to change, emerging approaches based on psychological studies of personality, psychometrics, cognition and behavior, among others. Creativity then appears to us as not dependent on a pre-defined background and as a process that cannot be described logically, as it is an irrational order phenomenon, which touches the

random and the unpredictable. With the technological advancement, human labor will be phased out, delegating every physical effort and part of the intellectual effort to machines, so only the monopoly of Human creative activities remains.

Vygotsky (1987) defines the creative activity as “any type of man’s activity that creates something new, be it anything from the outside world, a product of creative activity, or an organization of thought or feelings that acts and is present in man himself” (p. 5).

Creativity to Csikszentmihalyi (1998) is not the same as “creative thinking” to the extent that it takes place “in the interaction between a person’s thoughts and a sociocultural context. It is a systemic phenomenon, rather than individual” (p. 41). Creativity, with a capital letter (Csikszentmihalyi, 1998), or creativity H (Boden, 1999), is seen as the production of novelty that has a significant impact on a given field and is widely recognized and valued for its social significance. The creativity, with lower case (Csikszentmihalyi, 1998), or creativity P (Boden, 1999), also defines the social significance of the product, but on a different scale, i.e., the significance (meaning) that people give to that product in a limited scope.

Csikszentmihalyi (2004) presents creativity as a systemic process that arises from the relationship between different spheres of action (individual, field and domain) that are in different contexts (personal background, society and culture, respectively) that affect them, as shown in Figure 1.

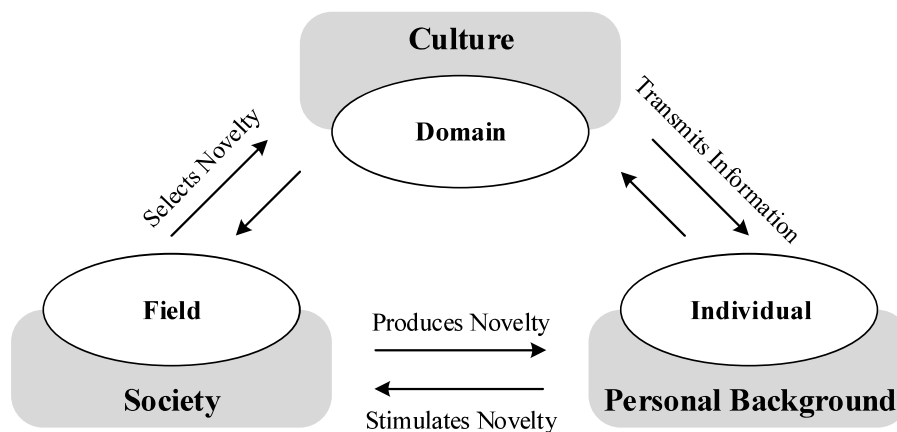


Figure 1. Creativity Systemic Process.
Source: Adapted from Csikszentmihalyi (2004).

Csikszentmihalyi (2004) states, as shown in Figure 1, that from the ‘individual’ point of view, it is necessary to analyze the cultural and social contexts in which this individual operates. The interaction between ‘individual’ <> ‘domain’ fosters the transmission of information and the interaction between ‘individual’ <> ‘field’ stimulate the occurrence of

results with original potential, producing and stimulating novelty, wherein the interaction between 'field' <> 'domain' selects novelty by the judgment and selection of what are the innovative results.

The 'individual' in itself is only a creative subsystem influenced by new particular symbols of a 'domain' and subject to the 'field' expert recognition (Rodrigo, & Tschimmel, 2009). Creativity is not present as an individual product, but as a result of a judgment of the systems with which the individual operates.

The 'domain' contributes to the creative process, affecting the action 'field' in the selection of novelty and affecting the 'individual' by transmitting information. The selection of novelty implies the existence of a set of "judges" that affect the cultural 'field' in which they operate, and that will or will not accept something as new or original (Csikszentmihalyi, 2004).

This wealth of features makes the concept of creativity an extremely complex and diffuse construct that involves many dimensions and therefore has not had as of yet, in the scientific community, an unconditional definition accepted due to the different research lines and phenomenon complexity. However, the various proposed definitions are grouped, centered and linked to the following four perspectives: (i) people; (ii) processes / techniques / means / actions; (iii) products / objects / purposes / goals; and (iv) climate / environments (Mumford, & Gustafson, 1988; Thomaz, 2005).

According to Torrance (1996) and Alencar (1996), among others, there may be considered three mental capacities closely linked to creativity: (i) Fluency (ability to think in a large number of different ideas or possible solutions to a problem); (ii) Flexibility (ability to change the course of thought or design different response categories); and (iii) Originality (ability to think of unique or unusual possibilities, based on possible, but rare, infrequent or unusual responses).

If creativity is a manifestation of a creative potential or capacity as human action or expression; so, Creativity is the expression of human potential ability to execute, through inventive originality or human innovation activity, products in the course of its process (Sakamoto, 1999, 2000).

Figure 2 shows a possible set of elements of creativity.

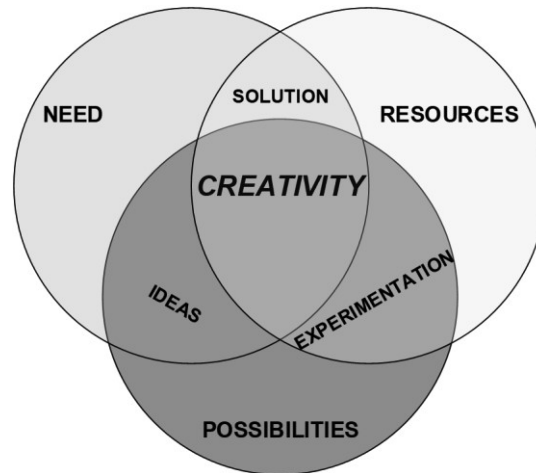


Figure 2. Elements of Creativity.

The modern models of the creative thinking process are more complex and of higher cognitive abstraction, as the complexity involved in the act of balancing analysis and imagination is probably one of the reasons why creative ideas are so rare. So, the model of “directed creativity” is the one that, integrating the developments of recent years in this area, it seems appropriate to be used because it allows the creative thinking development of the participants avoiding the individual and even group cognitive mechanisms difficulties and dangers, balancing imagination and analysis in a balanced manner to the necessary innovation (or creative ideas generation) (Plsek, 1996; Thomaz, 2005, 2015).

2.1 Plsek’s Model of Creativity

Plsek (1996) refers three great ideas for a creativity model: (i) the creative process involves a determined analysis, the imaginative creation (or generation) of an idea and a critical assessment, appealing the balance between imagination and analysis; (ii) the old models considered that creative ideas result from subconscious processes, totally out of the thinker’s control, while modern models consider that the generation of new ideas is under the thinker’s direct control; and (iii) the creative process requires a move to action and implementation of these ideas, making it into concrete realities.

The “directed creativity cycle” model is a synthesis of creative thinking models and adds the concepts proposed in the last 80 years, as shown in Figure 3.

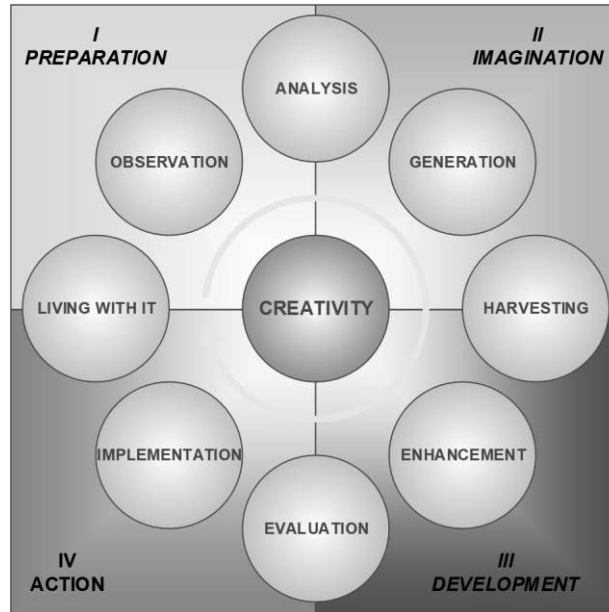


Figure 3. Plsek's Model of Directed Creativity.
Source: Adapted from Plsek (1996).

The “directed creativity cycle” starts in Quadrant I – Preparation, with the careful “*Observation*” of the world and a reflective “*Analysis*” of how things work and fail. These mental processes create a set of concepts that are stored in our memory and through them we can proceed to the “*Generation*” of new ideas, meeting specific needs and active search for associations between these concepts. There are varieties of specific techniques, which may be used for making this association (analogies, decomposition of concepts, classic brainstorming, etc.). The choice of technique is not the most important, but the key is the effort made to associate the concepts. In finding the balance between an acceptable solution (satisficing) and premature judgment, the stage of “*Harvesting*” was passed where more ideas were highlighted, performing an “*Enhancement*” before subjecting it to a final practice “*Evaluation*”. However, it is not enough to have creative thoughts; the ideas have no value until they are passed to “*Implementation*”. Every new idea that is applied in practice, changes the world and creates a situation of acceptability of “*Living with it*” to restart the cycle in the “*Observation*” and “*Analysis*” phases/stages (Plsek, 1996).

“Directed Creativity” only means that we do mental activities directed to avoid the difficulties and dangers associated with cognitive mechanisms at each stage of this process of searching for new and useful ideas. Note that this model continues the tradition of creativity as a balance between imagination and analysis, avoiding the controversy over whether the imagination is a conscious or subconscious mental ability and supports the notion that innovation is a step beyond the simple generation of creative

ideas. Creative ideas have value only when they are implemented in the real world (Plsek, 1996).

2.2 Innovation

From the main approach and definition of “creativity”, it proved to be important to introduce the concept of “innovation”, since there is a close relationship between them, which can be mistaken as synonyms, especially in the organizational environment.

Ridderstråle and Nordström (2006) state that innovation is a process in which ideas gain an economic dimension, making possible the leap from the conceptual to the practical application. Innovation should not be confused with invention. The definition of the authors anticipates a connection between creativity and innovation, and their importance in the organizational context. The value of innovation depends on the market and therefore has a sustainable component closely linked to society's needs. New and useful discoveries and changes are considered only if the environment in which innovative systems operate accept them. It is often that ‘time for ideas’ and ‘time of their acceptance’ to be different, and for socio-cultural and political reasons, the environment is not always prepared for change, creating barriers to innovation (Rodrigo, & Tschimmel, 2009).

Creativity is not an isolated individual act; it begins at the ‘individual’ and evolves into the conversation, sharing and discovery of innovative solutions and answers. The crucial factor for maintaining competitiveness is the “power of shared objectives”, experience, persistence and creativity (Ridderstråle, & Nordström, 2006).

Innovation could be defined, as stated by Ridderstråle and Nordström (2006), as the ability of an individual or group of individuals to use creativity and creative processes to generate new and differentiating ideas in order to put them into practice. These unknown and nonexistent ideas for the surrounding system become a real differentiating factor, which contributes to the value creation network.

By the comparison of the definitions of innovation and creativity, it is possible to differentiate these two concepts, although there are many points of contact between them. Both are a capacity of individuals, groups or organizations, both appeal to new perspectives and solutions, but while creativity is an individual's cognitive ability to generate new ideas, innovation makes use of distinctive and useful ideas to place it in practice (Moreira, 2008).

Brabandere (1998) states some differences between creativity and innovation, shown in Figure 4, and the apparent existing paradox of these false synonyms, where innovation emerges as a collective process powered by the creative thinking of each individual.

	Creativity	Innovation
Procedure	Individual	Collective
Works	Collectively	Individually
Process	Discontinuous, instantaneous	Continuous, lengthy
Impact	Not measurable, likely	Measurable, certain
Condition	Climate	Letter, Procedure manual
Training	Learning of methods	Use of strategic tools
Type of reunion	Brainstorming	Project management
Fuel	Questions, admirations, strange and incomplete ideas	Good ideas, suggestions retained
Type of thought	Divergent	Convergent

Figure 4. Differences between Creativity and Innovation.
 Source: Adapted from Brabandere (1998).

2.3 Creativity, Innovation and Decision Making

Clemen (1996) refers that creativity and innovation plays an important role in decision making because it can be much more than an activity that generates new alternatives that determine the limits (boundaries) of the decision. There is a tendency to think that decision making is essentially an analytical process, but the truth is that when we face a decision situation, the task focuses on the options available and the carefully choosing of the one that best suits the objectives.

This view, although incomplete, denies the creative nature of decision-making. An active decision maker looks for decision opportunities and tries to create them whenever possible, looking for new and better alternatives. This approach to decision-making is highly creative and is based on a learning process that incorporates this creative activity where the decision maker believes that the decision of opportunities and good alternatives exist and that the work is in discovering it, through diligent and introspective practice (Clemen, 1996).

The creative thinking improvement techniques should be the basis for developing new ideas and showing how the goals can provide fertile ground for the generation of new alternatives. Techniques such as fluent and flexible thinking, list construction, brainstorming and metaphorical thinking, can help people get high levels of creativity in

decision-making processes. Group discussion techniques can promote creativity, through proper management of group interactions, improving the creative environment (climate of creativity). The purpose of the incorporation of creativity in decision-making models are necessary not only to create new alternatives, but essentially to develop new decision opportunities (Clemen, 1996; Thomaz, 2005, 2015).

To improve the organizations' creativity, the customers or the general public must be taken into consideration on the demand of their needs, to improve the products or services. Creativity is a change tool, and according to this, organizations must tend to put aside the product design to justify bold creativity, getting this to be considered a value element for the success of change processes (Palma, & Cunha, 1999).

Recent studies have treated creativity and implementation as indicative of the same underlying concept-innovation. For example, Axtell et al. (2000) demonstrated that although autonomy and self-efficacy were most strongly related to idea generation, participation in decision making and support for innovation emerged as the most powerful predictors of implementation. The concept is not easy when we refer decision making implications, creativity means (Miron-Spektor, Erez, & Naveh, 2011), building dynamic capabilities (Harreld, O'Reilly, & Tushman, 2007), enable sustainability (Smith et al., 2011) and introduce novel innovations to achieve long-term sustainability, while exploiting operational efficiencies in existing products for short-term performance, facing an inertial pressure, in the structure (Henderson, & Clark, 1990), cognitive frames (Tripsas, & Gavetti, 2000), routines (Gilbert, 2005), and competencies (Leonard-Barton, 1992; Tripsas, 2009) that support these products. So, it was possible to conclude that with more creativity and innovation, it is possible to get a better decision-making process.

3. WINE TOURISM AND CULTURAL HERITAGE

Wine Tourism is defined as “visitation to vineyards, wineries, wine festivals and wine shows for which grape wine tasting and/or experiencing the attributes of the grape wine region are the prime motivating factors for visitors” (Hall, & Macionis, 1998, p. 267), i.e., it refers to tourism, as part of agri-, eco-, culinary or sustainable tourism, whose purpose is or includes the tasting, consumption or purchase of wine, often at or near the source, and also, visits to wineries, vineyards and restaurants known to offer unique vintages, as well as organized wine tours, wine festivals or other special events.

Getz (2000) defines Wine Tourism under three different points of view: (i) *wine producer* – can find an opportunity to show its differentiation to “educate” consumers, making direct sales; (ii) *tourism agencies or regions* – can develop a value-added destination around

the surroundings and wine-producing traditions; and (iii) *consumer* – can find a diversified product and benefit from new experiences.

The 'Old World' wine regions (such as Spain, Portugal, Hungary, France or Italy), and the 'New World' wine regions (such as Australia, Argentina, Canada, Chile, Mexico, New Zealand, United States or South Africa), where wine tourism players with an important role in the advertising of their products.

Winery tasting rooms are a place where visitors can interact with the product, the winemaker and the rich diversity that the wine region can offer in a complete and immersive touristic experience, that meet and exceed visitor's expectations, and that includes services such as restaurants, accommodation, tours, picnic and recreational facilities.

Viewed by the marketing perspective the tasting room is simply an essential interface between the brand and the customers, bypassing traditional retail channels and allowing the development of a direct relationship with design elements that creates a relaxed and friendly environment. Different people will respond to different aspects of their visit, so it is important to focus on building a complete experience that reflects and complements the brand and the tourist needs.

The motivations of the wine tourists could be based on age, interest and nationality, leading to taste wine, gain wine knowledge, experience the wine setting, be in a rural setting, match food and wine (culinary tourism), have fun (wine festivals and events), enjoy wine culture, appreciate the architecture, learn the 'green' aspects and eco-tourism and, enjoy the health aspects of wine.

Wine Tourism has a significant role in sustainable regional development through its environmental, economic and social dimensions (Hall, & Mitchell, 2000). The benefits of wine tourism are stated as: increased sales, higher margins, direct feedback and increased revenues for local services and commerce.

3.1. Cultural heritage

The cultural heritage could be defined as “the legacy of physical science artifacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations” (UNESCO, 2018), that includes tangible culture (such as buildings, monuments, landscapes, books, works of art, and artifacts), intangible culture (such as folklore, traditions, language, and knowledge), and natural heritage (including culturally significant landscapes, and biodiversity) (Sullivan, 2016).

Pioletti (2015) considers the territory's distinctive features made up of both material elements and identity values (geophysical characteristics, cultivation and manufacturing techniques, the territory's historical context), that includes:

the success of food and wine derives from its experiential value, i.e. its ability to provide tourists with an active and conscious experience of the territory and its otherness. These are the reasons that give meaning and value to the attractiveness of geo-itineraries. The tour itinerary can be defined as a "geo-itinerary" if it is proposed as a journey into the territory, that is, if it offers an experience of the space that constitutes the ultimate essence of the territory itself. But for this to happen, it is necessary that the route proposed as a tourist product is characterized by a degree of flexibility and adaptability with regard to the different, changing needs of tourists and that it has the active involvement of the local community. The latter is not only a carrier of the intangible cultural heritage that feeds the tourist appeal of the area, but it is also the cultural medium that makes the place, with all its connotations and intangible assets, intelligible and helps to create an empathetic relationship between tourism and territory. (p. 75)

Consequently, the use of *wine tourism online services* permits cost reduction and performance improvement in several areas (e.g., economics, financing and accounting, human resources), offering better information and making a better interaction with the customer/visitor/tourist. In the idea stated by De Rose et al. (2014), wine tourism services have many intangible aspects that can be improved, reducing the global costs of marketing and advertising, with a personalized online service, such as the example proposed here.

4. 'WINE EXPERIENCE' APP & SYSTEM CASE STUDY

Taking into account that wine routes are an essential vehicle for linking tourism and wine-producing activities and traditions, acting mainly as a privileged tool to divulge and promote one's regional tourism (Getz, 2000; Hashimoto, & Telfer, 2003), it is essential to have a technological and digital application that could easily interact and promote these routes with the visitors/tourists.

'Wine Experience' App is the technological interface that illustrates the "idea to product" notion of an innovative application to show, value, give life and a timeless dimension to the wine touristic, historical and cultural heritage routes and points of interest of Regional Wineries/Entities/Operators.

Based on a creative & innovative decision-making approach to satisfy the customers/visitors/tourists needs it was necessary to develop some ideas, based on the research done, that could be a good solution to this problem.

The development of the system and application began with a requirements analysis based on a set of strategy-focused interviews with wine tourism customers and some recognized specialists to define the set of needs and other major interests that could be highlighted by the application. Some of the reported needs could be solved with: (i) a search engine for all information available; (ii) the location and how to get in the wineries or points of interest; (iii) the relevant information about wine tourism and cultural heritage points of interest; (iv) the wine tourism services list for each winery; (v) the schedule and information about 'open', 'closed', 'near closing'; (vi) the booking, contact and suggestion functionality; (vii) the photos of the wineries; (viii) the regional website with a page for each winery (with history, photos and references of wine touristic points of interest); (ix) the wineries location on a map; (x) present the information in an intuitive & immersive way.

These needs involve a specific set of human and technological resources, based on the type of the new application's structure and design that are within the competences of the business strategy, web design & development teams.

The teams were able, during the R&D phase of the application, to think in a large number of different ideas and/or possible solutions to problems (fluency), changing, when necessary, the course of thought or design (flexibility) to obtain a unique or unusual response (originality). The app structure was developed to achieve the best user experience (UX) with index, list of points, maps, link to Wine Region Facebook™ and settings, each one with other functionalities shown in the Figures below. The prototype obtained was evaluated by a group of managers and tourism experts and proved to be a good and interactive solution that met all the defined needs and interests with an acceptable cost-benefit for all stakeholders.

This prototype of the application was validated with a group of people and has obtained a very good acceptance by its intuitive design, readiness and information available. With this presentation some other needs emerged and, when possible, it will be taken into consideration for the next version of the application.

Figure 5 shows the initial pages in the 'Wine Experience' app with the data of the project and the following page with a random photo with the region time and weather condition.

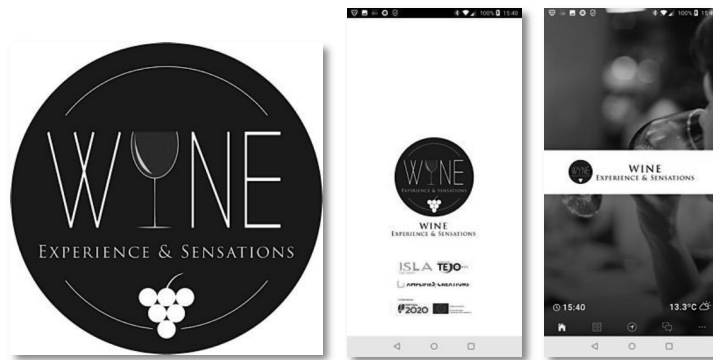


Figure 5. Project logo and Initial pages of 'Wine Experience' app.

The app shows a list of wine tourism points of interest with pictures and logos of the Wineries/Entities/Operators, their designation and route in which they are. By clicking in one of the wineries listed, it will show the information about schedule, address, 'how to get there', phone, accessibility, and the description of it with text, audio, photos, videos, etc. It allows the visitor/tourist to share it in social media and to create a list of favorite points or make a search for any element included in the all app data, as shown in Figure 6.

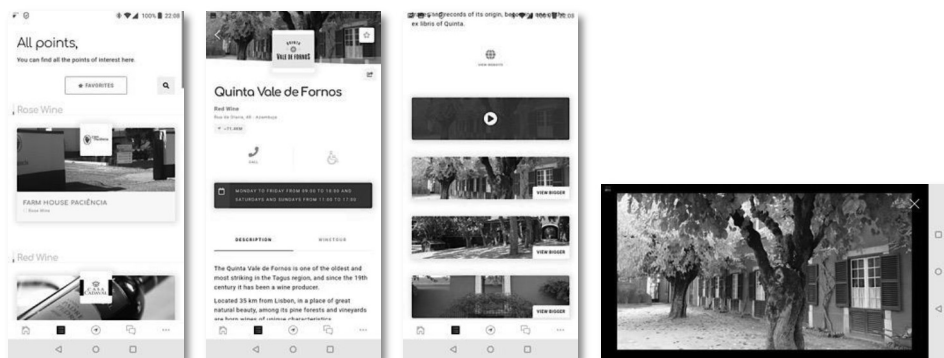


Figure 6. Initial pages of 'Wine Experience' app.

The 'Wine Experience' app & system are in technical and technological *state-of-the-art*, for web and application development making use of ionic framework with angularJS, javascript and HTML5 programming languages, among others, presenting a differential added value that allows the addition of updates and new functionalities [such as News (link to a social network), Augmented Reality, Photos 360°, 3D Videos, 3D Virtual Visits and interior plans] according to the needs, specifications and economic model of the Winery/Entity/Operator.

For the visitor/tourist, the 'Wine Experience' app & system presents the best and most differentiated user experience (UX) possible, with a clean design, intuitive, interactive

and easy to use, online and offline (in case of non-availability of network Wi-Fi/3G/4G, the application is automatically configured for offline operation, with few restrictions), but also, an immersive and proximity environment with interactive mapping of the points of interest and reception of notifications, when visitors are close to a point. This allows the visitor/tourist to make an optimized interactive visit, with indication of the route, in a context of total immersion with the availability of differentiated contents and information about them. Figure 7 shows the notifications and the interactive map of the 'Wine Experience' app.

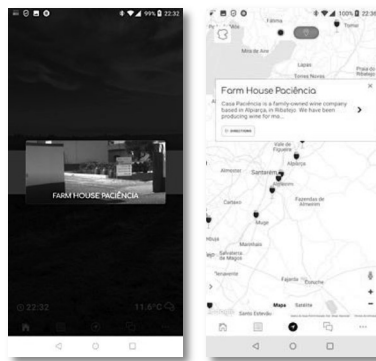


Figure 7. 'Wine Experience' app notification and interactive map.

The 'Wine Experience' system provides a Web Content Management System (CMS) that allows easy updating or modification of all content (routes, points of interest, regional products, etc.), in real-time, of the mobile application and its website and also statistics with a 'HeatMap' with the representation of the intensity of traffic in the routes and in the points of interest accessed by visitors/tourists.

It also includes extras (such as statistics, visited route, send occurrence, help) and general settings that include: (i) receive (or not) notifications, (ii) language (Portuguese, Spanish, French and English) and (iii) accessibility features, such as 'always visible' screen, 'dark mode' (color inversion including maps), five-level 'font size' and 'accessibility mode' (shows only points with accessibility information), as shown in Figure 8.

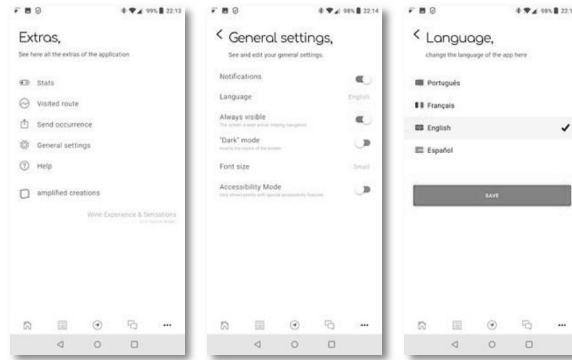


Figure 8. 'Wine Experience' app extras and general settings.

5. CONCLUSIONS

The R&D Project “*Wine Experience & Sensations – Wine Heritage & Culture Explorer in Tejo Region*” has as objective to valorize the wine touristic activity of the Tejo region, from the point of view of the offer, enhancing it, in order to attract and captivate a greater and better demand.

In this context, the 'Wine Experience' app & system was designed to interact and create an immersive environment with the visitors/tourists, to show, value, give life and a timeless dimension to the wine touristic, historical and cultural heritage routes and points of interest of Regional Wineries/Entities/Operators.

'Wine Experience' app & system are in technical and technological *state-of-the-art*, for web and application development, with an interface that illustrates the “idea to product” notion, created on a creative & innovative decision-making approach to satisfy the customers/visitors/ tourists needs. These needs involved a specific set of human and technological resources, based on the type of the new application's structure and design that were within the competences of the business strategy, web design & development teams.

The teams were able, during the R&D phase, to think in a large number of different ideas and/or possible solutions to problems (fluency), changing, when necessary, the course of thought or design (flexibility) to obtain a unique or unusual response (originality).

The prototype obtained was evaluated and proved to be a good and interactive solution that met all the defined needs and interests with an acceptable cost-benefit for all stakeholders.

The 'Wine Experience' app & system present a differential added value that allows the addition of updates and new functionalities [such as News (link to a social network), Augmented Reality, Photos 360°, 3D Videos, 3D Virtual Visits and interior plans]

according to the needs, specifications and economic model of the Winery/Entity/Operator.

BIBLIOGRAPHY

- Alencar, E. S. (1996). *A gerência da criatividade*. São Paulo, SP: Makron Books.
- Axtell, C. M., Holman, D. J., Unsworth, K. L., Wall, T. D., Waterson, P. E., & Harrington, E. (2000). Shopfloor innovation: Facilitating the suggestion and implementation of ideas. *Journal of Occupational and Organizational Psychology*, 73, 265-285.
- Boden, M. A. (1999). O que é criatividade? In M. A. Boden (Org.), *Dimensões da criatividade* (pp. 81-123). Porto Alegre, RS: Artes Médicas.
- Brabandere, L. (1998). *A gestão de ideias: Da criatividade à inovação* (1ª. ed.). Lisboa: Instituto Piaget.
- Clemen, R. T. (1996). *Making hard decisions: An introduction to decision analysis* (2nd ed.). Pacific Grove, CA: Duxbury Press.
- Csikszentmihalyi, M. (1998). *Creatividad: El flujo y la psicología del descubrimiento y la invención*. Barcelona: Paidós Iberica.
- Csikszentmihalyi, M. (2004). Implications of a systems perspective for the study of creativity. In R. J. Sternberg (Ed.), *Handbook of Creativity* (pp. 313-336). Cambridge, UK: Cambridge University Press.
- De Rose, M., Marchiori, E., Kalbaska, N., & Cantoni, L. (2014). Independent e-learning offers in Tourism and Hospitality: In search of a map and possible quality indicators. *eLC Research Paper Series*, 8, 45-55.
- Getz, D. P. (2000). *Explore Wine Tourism: Management, Development and Destinations*. New York, NY: Cognizant Communication.
- Gilbert, C. (2005). Unbundling the structure of inertia: Resource versus routine rigidity. *Academy of Management Journal*, 48, 741-763.
- Hall, C. M., & Macionis, N. (1998). Wine Tourism in Australia and New Zealand. In R. W. Butler, C. M. Hall, & J. M. Jenkins (Eds.), *Tourism and Recreation in Rural Areas* (pp. 267-298). Chichester, UK: John Wiley and Sons.
- Hall, C. M., & Mitchell, R. (2000). Wine Tourism in the Mediterranean: A Tool for Restructuring and Development. *Thunderbird International Business Review*, 42(4), 445-465.
- Harreld, J. B., O'Reilly, C. A., & Tushman, M. L. (2007). Dynamic capabilities at IBM: Driving strategy into action. *California Management Review*, 49, 21-43.

- Hashimoto, A., & Telfer, D. (2003). Positioning an Emerging Wine Route in the Niagara Region: Understanding the Wine Tourism Market and its Implications for Marketing. *Journal of Travel and Tourism Marketing*, 14, 61-76.
- Henderson, R. M., & Clark, K. B. (1990). Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*, 35, 9-30.
- Leonard-Barton, D. A. (1992). Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*, 13, 111-125.
- Miron-Spektor, E., Erez, M., & Naveh, E. (2011). The effect of conformist and attentive-to-detail members on team innovation: Reconciling the innovation paradox. *Academy of Management Journal*, 54, 740-760.
- Moreira, M. V. P. (2008). *Criatividade organizacional: Uma abordagem sistémica e pragmática* (Master Thesis in Innovation and Technological Entrepreneurship in Engineering, University of Oporto, Oporto, Portugal).
- Mumford, M. D., & Gustafson, S. B. (1988). Creativity syndrome: Integration, application, and innovation. *Psychological Bulletin*, 103, 27-43.
- Palma, P., & Cunha, M. P. (1999). Mudança e criatividade nas organizações: O caso de uma aquisição. *Psicologia*, XIII(1-2), 193-217.
- Pioletti, A. M. (2015). Culture, food and wine as heritage of rural areas. *Semestrare di Studi e Ricerche di Geografia Roma*, XXVII(1), 71-79.
- Plsek, P. E. (1996). *Models for the creative process* [working paper]. Roswell, GA: Paul E. Plsek & Associates, Inc.
- Ridderstråle, J., & Nordström, K. A. (2006). *Capitalismo karaoke: Gestão para a humanidade* (1ª. ed.). Lisboa: Público - Comunicação Social SA.
- Rodrigo, J., & Tschimmel, K. (2009). Sistemas creativos: ¿Qué hace que tengamos más o menos ideas? La pasión por la creación de nuevos mundos visuales y el placer de mirar-los. In A. Sátiro (Coord.), *Pasión por Crear_Placer de Admirar_Necesidad de Transformar* (pp. 30-46). La Coruña: Publicação Macuf.
- Sakamoto, C. K. (1999). *A criatividade sob a luz da experiência: A busca de uma visão integradora do fenómeno criativo* (Doctoral Dissertation, Institute of Psychology, University of São Paulo, São Paulo, SP, Brazil).
- Sakamoto, C. K. (2000). Criatividade: Uma visão integradora. *Psicologia: Teoria e prática*, 2(1), 50-58.
- Smith, C. L., Lopes, V. L., & Carrejo, F. M. (2011). Recasting paradigm shift: "True" sustainability and complex systems. *Human Ecology Review*, 18(1), 67-74.

Sullivan, A. M. (2016). Cultural Heritage & New Media: A Future for the Past. *The John Marshall Review of Intellectual Property Law*, 15, 604-646.

Thomaz, J. P. C. F. (2005). *O apoio à tomada de decisão na avaliação do desempenho de pessoas: Contributos para o processo de decisão militar em tempo de paz* [in portuguese] (PhD Dissertation in Industrial Engineering and Management, Technical University of Lisbon, Lisbon, Portugal).

Thomaz, J. P. C. F. (2015). Interculturalidade, turismo, decisão e informação (Intercultural, tourism, decision and information). Presentation at *Seminar of Intercultural Human Resources Management* [in portuguese]. 22 October 2015. Tomar: Polytechnic Institute of Tomar.

Torrance, E. P. (1996). *Criatividade: Medidas, testes e avaliações*. São Paulo, SP: Ibrasa.

Tripsas, M. (2009). Technology, identity, and inertia through the lens of “the digital photography company”. *Organization Science*, 20, 441-460.

Tripsas, M., & Gavetti, G. (2000). Capabilities, cognition and inertia: Evidence from digital imaging. *Strategic Management Journal*, 18, 119-142.

UNESCO (2018). Protecting Our Heritage and Fostering Creativity. Available at <http://www.unesco.org/new/en/culture/>.

Vygotsky, L. S. (1987). *Imaginación y creación en la edad infantil*. Havana: Pueblo y Educación.