Caminhos do Interior: Connecting Information Systems, Tourism, and Regional Development in Brazil's Inland

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***Abstract.** This paper introduces the "Caminhos do Interior", a proposal of web-based solution aimed at promoting regional development through tourism in the lesser-explored areas of Brazil. Drawing from an interdisciplinary and sociotechnical perspective, this project merges concepts of under tourism and city branding to curate and spotlight tourist attractions. We provide a web-based high-fidelity prototype showcasing regional attractions, city profiles, and a categorization of tourist activities. With potential impacts spanning academia, industry, and policy, our initiative contributes to the literature and practice by investigating the role of Information Systems (IS) in promoting regional growth and enriching the understanding of the interplay between IS, tourism, and socioeconomic development. Furthermore, we intend to offer practical and socially aware insights by demonstrating the role of an IS in attracting tourists, investors, entrepreneurs, and strengthening regional economies.*

1. Context

Regional development emerges as a fundamental driver of socioeconomic growth. As discussed by Bellingieri (2017), the Theory of Regional Development discusses the presence of a leading economic activity that spreads its dynamism across other sectors of the economy, thereby fostering regional growth. Specifically, tourism can be pinpointed as a significant economic activity propelling regional development. However, there are numerous areas, particularly in the inland regions of Brazil, where the tourism potential is noteworthy yet still underexplored or unrecognized. While this scenario stems from various factors, the lack of proper promotion facilitated by information systems stands out as a challenge to achieving recognition of these destinations [Calero and Turner 2020].

In this regard, the lack of visibility also creates social and economic challenges, as local communities cannot reap the benefits that tourism could amplify. Such regions, often

home to natural beauty, historical heritage, and cultural richness, have the potential to offer remarkable experiences to visitors and, consequently, support regional development and socioeconomic advancements. As we can see, this motivation is aligned with the "Systemic and Socially Aware Perspective for Information Systems" highlighted in the "I Grand Research Challenges in Information Systems in Brazil" [Boscarioli et al. 2017].

Moreover, this awareness towards peripheral areas, such as the inland regions of Brazil with underexplored tourist potential, represents a noteworthy alignment with two emerging concepts: under tourism and city branding. Under tourism refers to destinations that possess attractions and tourism potential yet remain relatively unknown by tourists [Gowreesunkar and Vo Thanh 2020]. In other words, these areas lie outside the realm of traditional tourist interest, often overlooked by promotional and marketing strategies.

On the other hand, city branding can be defined as a means to gain a competitive advantage that allows a city to enhance its appeal for investment and tourism, as well as to reinforce local identity, the city's image, and mitigate social exclusion [Kavaratzis 2004]. Hence, city branding aims to create an appealing image for tourists and investors, as well as to strengthen the local identity of residents [Castillo-Villar 2018]. Analogous to the context of corporate or product branding, city branding enables an enriched tourism marketing communication strategy. This context can be strengthened through social web practices, considering the opportunity that arises from the shift in revenue streams in tourism caused by web advancements [Amersdorffer et al. 2012].

2. Process

Building upon the concepts of regional development, under tourism, and city branding, this paper introduces the "**Caminhos do Interior**", which seeks to innovate as a software product to support the promotion of cities (along with their respective tourist attractions) in the inland regions of Brazil through a web-based platform. For this paper, we developed a high-fidelity prototype (open available at http://gesid.github.io/caminhosdointerior) focused on the Sertões de Crateús, which is a semi-arid region of Ceará. When searching for information about the city of Crateús on TripAdvisor, for instance, there is a notable lack of details, with the emphasis solely on some lodging and simple dining options. Hence, our hypothesis relies on the opportunity to develop an innovative product to leverage the tourism potential that the cities in the interior of Brazil can offer. Thus, our product stands out from similar solutions in terms of innovation by focusing on a curated selection of inland destinations and strongly emphasizing the user/tourist experience.

From a methodological standpoint, "Caminhos do Interior" was built upon an interdisciplinary framework rooted in Design Thinking [Meinel and Leifer 2020]. To grasp the initial needs, we started the Empathy phase by delving into Instagram profiles dedicated to tourism in Ceará and closely examining user comments. We outlined our objectives and challenges in the Definition phase, including the main software requirements. During the Ideation phase, we conducted brainstorming sessions involving a group of IS students from the targeted region, resulting in a pool of creative ideas. We also investigated analogous solutions implemented by other countries. Our ideas were subsequently designed into tangible functionalities through the Prototyping stage with the help of Figma tool. Our next step is to code the responsive web platform in the Implementation phase.

3. Solution

As illustrated in Figure 1, our high-fidelity prototype encompasses distinct web pages covering four main perspectives. The homepage showcases a curation of regional attractions and provides categorized tourist destinations (such as religious, gastronomic, etc.). The second perspective, "*Onde ir?*" (in english, "Where to go?"), focuses on sharing information about the inland regions and cities. Each city has a dedicated page presenting information (accommodations, location, useful links, highlights, etc.) to enhance the tourist experience. The third perspective pertains to the "*O que fazer?*" (in english, "What to do?") page, which highlights all the categorized attractions, such as religious tourism, ecotourism, gastronomic tourism, etc. Analogous to the city pages, each tourist attraction has a dedicated page with additional information (location, useful links, etc.). Lastly, the fourth perspective refers to the Search page, where users can filter specific destinations.
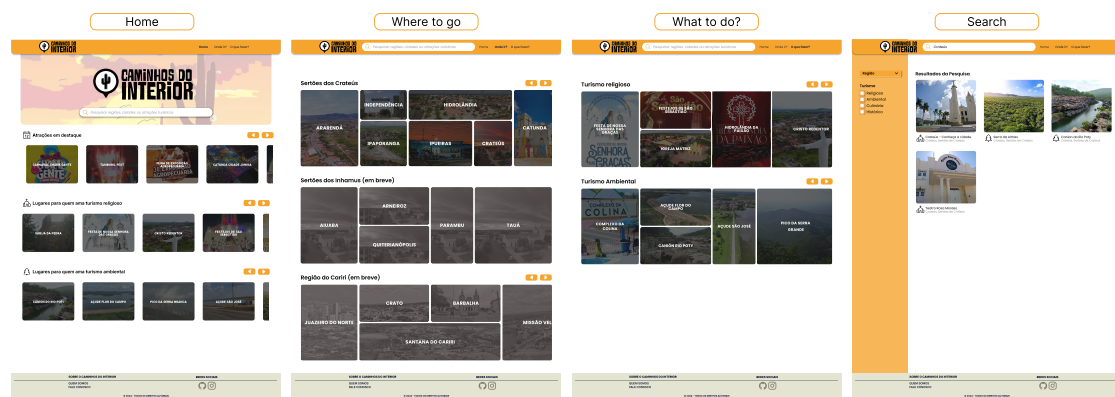

Figure 1. Caminhos do Interior - High-fidelity prototype

In summary, "Caminhos do Interior" leverages an interdisciplinary approach by combining ideas from the fields of Information Systems (IS), Tourism, and Regional Development. This integrated perspective, empowered by the concepts of under tourism and city branding, fosters a holistic understanding of the complex dynamics of tourism market at play. In this sense, creating a web platform that curates information, connects users with lesser-known attractions, and provides tourists with an informative experience demonstrates a prominent use of IS.

Finally, through the continuous development of the "Caminhos do Interior", there is a valuable opportunity to contribute and benefit both academia and practical applications in the context of IS. From an academic standpoint, our multifaceted approach allows for the generation of knowledge regarding the role of digital technologies in regional promotion and development in Brazil's inland, enhancing the understanding of the sociotechnical dynamics between IS, tourism, and socioeconomic growth. From a practical perspective, our user-centered proposal exemplifies a prominent pathway in constructing a socially aware IS grounded on the emerging concepts of under tourism and city branding to attract tourists, investors, entrepreneurs, and, hopefully, increase regional development.

As future work, we plan to advance to the Implementation phase, followed by conducting a User Experience (UX) evaluation involving potential users. Additionally, there is an opportunity to investigate technology acceptance from the perspectives of various stakeholders, including policymakers, travel entrepreneurs, tourists, etc.

References

Amersdorffer, D., Bauhuber, F., and Oellrich, J. (2012). The economic and cultural aspects of the social web: Implications for the tourism industry. *Journal of Vacation Marketing*, 18(3):175–184.

Bellingieri, J. C. (2017). Teorias do desenvolvimento regional e local: Uma revisão bibliográfica. *Revista de Desenvolvimento Econômico (RDE)*, 2(37).

Boscarioli, C., de Araujo, R. M., Maciel, R. S., Neto, V. V. G., Oquendo, F., Nakagawa, E. Y., Berrnardini, F. C., Viterbo, J., Vianna, D., Martins, C. B., et al. (2017). I GranDSI-BR: Grand Research Challenges in Information Systems in Brazil 2016-2026.

Calero, C. and Turner, L. W. (2020). Regional economic development and tourism: A literature review to highlight future directions for regional tourism research. *Tourism Economics*, 26(1):3–26.

Castillo-Villar, F. R. (2018). City branding and the theory of social representation. *Bitacora Urbano Territorial*, 28(1):33–38.

Gowreesunkar, V. G. and Vo Thanh, T. (2020). Between overtourism and under-tourism: Impacts, implications, and probable solutions. *Overtourism: Causes, implications and solutions*, pages 45–68.

Kavaratzis, M. (2004). From city marketing to city branding: Towards a theoretical framework for developing city brands. *Place branding*, 1:58–73.

Meinel, C. and Leifer, L. (2020). *Design thinking research*. Springer.