Czech University of Life Sciences Prague

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Diploma Thesis

E-Tourism and economic growh in Kenya

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Summary

Tourism is one of the world's major employer and the fastest growing industry. There exist various tourism providers which are motivated in providing better tourism services to their clients based on their interests. Semantic Web is one of the major technology which enhances the functionalities of the web by enriching its content with semantic metadata which can be processed by internet-enabled web applications. E-Tourism is one of the products for such enrichment, since it is an information-based business. In the information-based domain, the provision of relevant information to the consumer results to better end product. In this thesis a simple Knowledge Base has been designed consisting of domain-specific information. The developed KB stores facts related to Kenya Tourism, which are structured using a light-weight ontology (adapted from Harmonise e-Tourism ontology. Planning rules are also applied to infer best recommendations of routes, activities like (events, attraction spots), bookings and accommodations. The relationships objects are semantically described using Friend Of A Friend (FOAF) concept.

This study is analytical based on qualitative data. Poor technology, poor infrastructure, inflexibility in tourism systems and lack of government initiative are some of the factors hindering e-Tourism adoption in Kenya. Proper customer service, implementation of better technologies, efficiency and interoperability through integration of tourism systems will lead to enhancement of tourism. Accordingly, conclusion will suggest some recommendations to be applied by Kenya Tourism Board and other tourism stake holders in Kenya in the management of this sector.

Keywords: E-tourism, Ontology, web semantics, dynamic packaging, Kenya.

Objectives and Methodologies

The main objective of this thesis is to analyze the current state of e-Tourism systems in Kenya. This entails recommendation of development and design of an e-tourism ontology that will enhance accessibility, efficiency, interoperability and proper management of tourism information

The partial objectives includes:

- To research on the current marketing strategies used in this sector and come up with proper marketing methods that are in line with the latest technologies and have been applied in the leading tourist countries.
- To carry out a SWOT analysis in order to identify the opportunities that needs to be exploited and barriers which hinders the growth of e-Tourism in Kenya. Hence, enhance the competitive advantage of the sector.
- To recommend the importance of development of dynamic package in an ontologically controlled tourism system towards enhancing usability and interoperability of tourism systems in Kenya

Methodology

A comprehensive research will be carried out on the current systems of the Kenyan tourism sector, analyze the findings and come up with proper methods of improvement.

From the findings and results, recommendations will be made on the best technology which should be applied on the current tourism systems that will lead to its growth.

The researcher will propose the current software tools to be incorporated into the tourism system in order to visualize the process of easy access to the tourism data and information, and also to embrace the current marketing strategies.

Through the research findings, better architectures and use cases will be proposed that could be of importance in the advancements of the platforms used by Kenya's tourism sector.

Proper e-tourism application will be proposed that if implemented, will not only add value and competitive advantage with the competitors, but also add consumer's loyalty to the value.

Through the research findings, I will propose better architectures and use cases that could be of importance in the advancements of the platforms used by Kenya's tourism sector.

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E-tourism in Kenya

The solution for this study is intended for E-Tourism systems in Kenya. The study focuses on how ICT innovations have impacted tourism industries, it goes further to analyze the kind of developments which should put together to ensure this development goes hand in hand with the

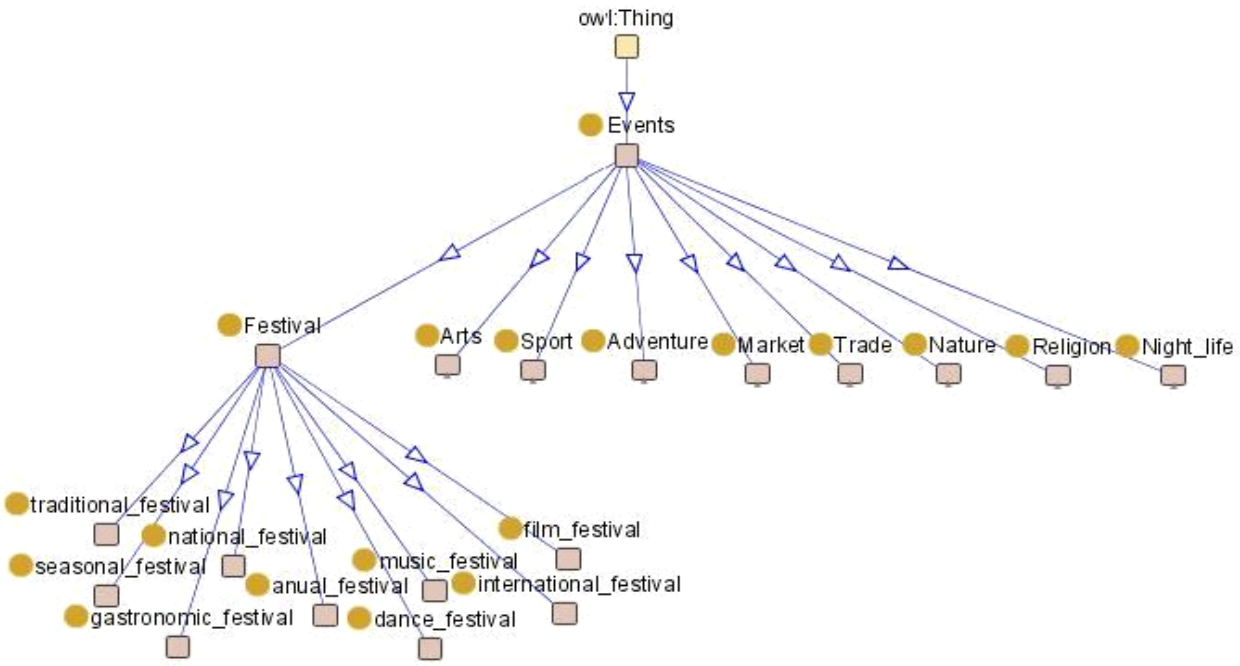
advancement of technology. The study is narrowed down to Kenya tourism sector with an aim developing the current tool that ensures the tourism data can be easily accessed in an organized, secure and consistent manner.

The Current state of Kenya's E-tourism

Kenya Tourism Industry boasts of unparalleled services and travel facilities as per the International standards. The industry is the prime revenue earner and plays an important role in the economic development of Kenya. As Kenya boasts of picturesque beaches and varied wildlife, an individual traveling to Kenya can experience the best of both worlds-land and sea. Kenya tourism industry is always working on the travel policies and strategies to better the tourism standards. Infrastructure coupled with love for wildlife has prompted Kenyan tourism to move ahead. Kenya tourism industry offers tourism services in harmony with other tourism related industries to suit the needs of every individual. However Kenya tourism sector is performing dismally in the world tourism market regardless of these resources. Tourism ranking has also reduced both continentally and worldly. According to the findings in the literature review, lack of incentive to apply proper technology in tourism systems maybe the major drawback.

Choosing the best technology for e-Tourism system

One of the major solutions for the problems identified in the literature review is the proposal for a new tourism ontology for proper management of tourism data, interoperability and efficiency. Ontologies represent the real world in a systematically structured way. By consistently defining deep terms for the same real-world entities, ontologies provide a 'reference model' for their domains, a strong set of terms which can be used to simplify communications between domain experts and therefore increase comprehension and knowledge sharing. In the tourism domain, concepts pertaining to tourism can be stored in a single knowledge base for easy access. The knowledge base stores annotated information from the local database, information from the web by the help of the WebCrawler's and tourist information concerning accommodation, flight bookings, and activities. All these information can be accessed on the user interface after the user inserts the information they want to know. Ontology has the potential to improve the process of searching appropriate destinations according to the customer preference. It also shows interaction between different classes stored on the knowledge base and their relationships. The figure below shows an OntoGraph of how different activities of Kenya tourism system can designed for easy access.



Results, Findings and Discussions

A lightweight ontology was designed using protégé as a tool based on Harmonise e-tourism ontology. The concepts stored in a knowledge base could be queried using SPARQ. The results from this study provide support to the majority of hypotheses identified in the beginning of this research. This study found out that, the best way to make tourism data universal and flexible is through developing a powerful ontology. The tourism ontology can be connected to Jena or any API and accessed easily by the user through user interface provided on the websites.

The researcher also plans to build an ontology fact in the existing KB enriched with sub-systems which are important in the travel plan generation. Implement partonomy rules in the main administrative regions of Kenya, through inferences, provide planning and recommendation model of services. Implement an e-Tourplan operations (accommodations, flights, search...) by evaluating dynamic user preferences in appropriate reasoning engine (OO jDREW).

Future research is also focused on deriving facts from KB or extracting them from Web Semantics homepages instead of handcrafting them, through this technique, inter-related homepages of tourism entities can be integrated together using the existing predicates.

Finally, designing a user-friendly Graphical User Interface to enhance utility and interoperability, and implement a central tourism ontology that can be easily accessed by any tourism organization in Kenya.

Conclusion

Tourism and technology are totally coexisting whole implementation enhance interoperability, usability and efficiency. The research reveals that, lack of proper technology in the tourism sector was the major attribute of e-tourism in Kenya. SWOT analysis further reveals lack of initiative from the government, recommendations were suggested to this effect.

The study further revealed that the static nature of the tourism is one of the short comings that must be addressed. The presented architecture can be very useful to create solutions that integrate different data sources to fulfil a specific ontology. In the tourism domain, the information must be aggregated in order to allow the creation of dynamic packages. Using our architecture, we can think first in defining the information concepts that we want to aggregate. Then, search for data sources that can provide the information to integrate with them.

The outcome confirmed that development of tourism ontology would enhance interoperability and accessibility hence, competence. The study further reveals that proper e-tourism management can only be achieved if the government of the land makes it its initiative and supports it to the fullest.

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