# Contribution to the design of an information system for the National Tourist Development

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*Abstract*— **This work represents a general view of the "Augmented Reality" applied to the tourism field for detecting the issuer's language, based on informatics technical system, that containing concepts, methods, statistical tools, computer science or even neuroscience, therefore, it essentialto start by an "Automatic recognition of the language" which has been used by the tourist (in the case of a multilingual system, thatwill be more interesting than having a simple monolingual system), then try to extract keywords from what the tourist said ("Automatic Speech Recognition"), and finally propose responses to the tourist by report to keywords extracts, by using applications in the field of digital technologies, as well as, design and evaluation techniques for the human-machine interactions.**

*Keywords*— ; *Machine Learning, voice, mining, collaborative work, modeling of knowledge.*

## I. INTRODUCTION

The information systems are always active, therefore, Learning adapts to new operation models by focusing on automatic speech recognition while exploiting thelatestand newest kinds of technologies, by the analysis of keywords from what the tourist said. A recognition system includes several components:

Amodule of parameter extraction, a matching block, a module for standardization of pairing scores and a module for decision. The architecture of a speaker verification system is shown in Figure 1.
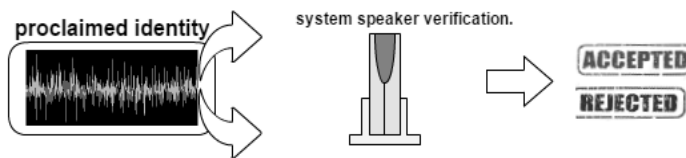


Figure 1 : A system of the speaker verification

The innovation consists of developing a multidisciplinary approach, at the edge of the engineering sciences and the analysis and treatment sciences favoring the interactions of the tourist with its needs, based on field study and modeling. We are going to describe a social-technical system. In other words, interdisciplinary methods of different issues, comprehension of texts, analysis of the blogosphere or social networks as well as the artificial life and robotics: the artificial learning which we can donate the autonomous systems that were inspired by the natural behaviors without forgetting the integrative neuroscience: brain Computing, modeling of perceptual-motor that focus on the reactions of the subjects and the learning in the framework of the action modeling.The professionals in this field confirm that 90% of the knowledge is stored in the heads, while the 10% is recorded in the books and computers. Generally, the computers can search, store and process the knowledge, but the importance is at the level of transmitting knowledge. A lot of information and knowledge are on the web, but the treatment of these knowledge is not well developed.

The expert system avoids writing the new programs for reinjecting the information: thanks to its module of acquisition, new data can be incorporated during use. It is designed to help a user in a particular area to find the solution adapted to his questioning, and of course, in the current state of specialized knowledge. In this paper, we will describe two fundamental points, firstly, the questioning of "behaviorism"and, secondly, the possibility to build models that integrate data of the neuroscience and cognitive psychology by receiving the simulations and models from the contributions of the informatics.The Heritage carries the memory of its community and its males. Beyond the intrinsic value that it represents, the protected and valued heritage can become a significant resource for the socio-economic progress of communities and an engine of growth and sustainable local development.Our work is focused on the valorization and development of the heritage which has a significant positive impact on the level and the life quality of populations.

Our solution will support the tourism stakeholders in the revolution of the information society towards the knowledge society, by mobilizing the knowledge and tools of decision

support, as well as responding to their request for information by putting at their disposal a base of information and knowledge-sharing, where they will find not only scientific and technical information, such as works and publications in the research sector, but also information of a strategic nature. The first phase of our mission encompasses the establishment of an observation functionandheritage monitoringin the eastern Moroccan region, with a view to detecting, preserving, valuing and following up all the signals capable of development of tourism in this region, through the use of strategic intelligence, as part of our investigation which aims to determine whether the opening of an information system on the eastern region can desire and changed the corresponding image or heritage of this region.

The questions that we have chosen are transparent to various degrees, so that the respondents know the purpose of the research. The questions asked will be closed-direct, open-direct, open-indirect and closed-indirect. The survey includes questions that relate to all aspects of the research.The closed-directquestionnaire is the most current. The questions and possible answers are predetermined and, from the beginning, the objective of the study is clear to the participant, this survey is established to allow easy counting and a good interpretation of responses. It includes two types of questions: dichotomous questions and the multiple-choice questions.

• The dichotomous question gives to the interviewee the choice between two proposed responses.

• The multiple-choice questions, they allow to the participantthe opportunity to choose among several responses, which is the best. However, it may be that none of the answers is not entirely appropriate and that the participant wishes to have other choices.

The closed-directquestionnaire is of the utmost effectiveness when the proposed answers are clearly defined, well understood and limited in number.At the level of the open-directquestionnaire, the formulation of the questions is different: they are usually open. The investigator will not askthe dichotomous questions or multiple-choice and it will not probably have a list of questions pre-established, because it wishes to leave the participant speak as freely as possible. Rather than request. Otherwise, the open-indirectquestionnaire is the biggest advantage of our questionnaire, remains the possibility of collecting data that the participant could not provide through a direct or more closedapproach.Finally, the closed-indirect questionnaire which also aims to conceal the participant the true purposes of the study.

In this paper, we have identified the main research methods which are divided between the choice of the method and the data collection tools, we also treated the results of the research by reading the results obtained and the presentation of the synthetic diagnostics.As a strategic Intelligence can offer a competitive advantage relatively sustainable for the heritage of the Moroccooriental region, because it can upgrade, it must develop its heritage via an inventory and selection of regional treasures so that it is also competitive to create significance.

## II. INFORMATION SYSTEM HAS BECOME REQUIREMENT

In the era of the information and the technological communication tools, consciously or unconsciously, each of us is in almost permanent contact with one or several information systems. The appraisals and points of view can differ, but the impact of information systems on society, the economy and especially the daily life of each of us is certainly perceptible.

Generally, the information systems have been started with the management tools in all areas. It was then question of robotizing, to the aid of computer science, the difficult and repetitive tasks related to the data processing, in order to gain the speed and reliability" it is for all these reasons the man considered as the user, it is necessary to have contacted with an Information System in his personal and professional life. The Human-machine interaction refers to the generous and infinite attachment of several users who are therefore dependent on the immediate relationship by their mobile phone but not of the object. The use of an object is good if the consciousness of the human being is good. Clearly, the purpose of the tool ultimately depends only on the human who uses it.this demonstrates that the System Information is a friend imposed on the man.

## III. EFFECTIVE TECHNOLOGY TOOL FOR TOURISM AWARENESS

The purpose of the information system is to helpcompanies to conduct, within, an effective citizen monitoring and awareness campaign by providing advice and practical tools, with the participation of the workers and their best ideas as well asthe relevant remarks that come from the workers themselves. we can involve them with the multiplication of the communication channels. On the other side, at the level of the financial aspects, the workers feel sometimes that their efforts are only for purpose to profit financially to the company so it isnecessary avoid addressing the financial aspects, it is better to highlight their positive role in the action.

### A. Expert System and Automatic Language Recognition

| Structuring level | Conceptual level | Cognitive level |
|---|---|---|
| Affects the algorithmic procedures in the field of multilingual systems for automatic language recognition. | Represents the knowledge in order to include the concepts that the Specialist made a current use. | Includes a large quantity of raw knowledge relative to the field of the Tourism Communication. |

Table 1 : Levels of knowledge mass
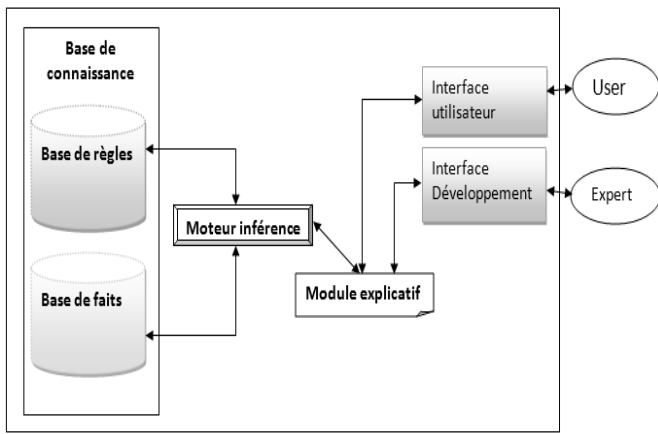
**Figure 2: Design of an expert system**

For a system of rules, it is estimated that with the help of interviews, one can generate a very limited number of rules by days.

The causes are the following:

- THE engineer is not a specialist in the field of expertise, but he must learn aminimum knowledge base to communicate with the expert.
- THE expert does not usually think in terms of major principles but in terms of typical situations and events classics.
- IT is already difficult to develop a framework (ratings) to express the knowledge, even on paper.

To exceed the limits of the expert system it is necessary to:

- Better model the reasoning.
- Better modeleling the domain.

### IV. METHODOLOGY

#### A. The knowledge engineering

The knowledge engineering would evoke the techniques to manipulate computer knowledge.

The effort is focused on:

- Identification & Acquisition :
  - Techniques & Tools (documents, interviews...)
- Modeling & Formalization:
  - modeling language, (Field, Task...)
  - methodologies (KADS, KOD...)
  - Language of formal representation
- Use
  - Navigation, inference, explanation...
- Maintenance& Management

**Intervention of several disciplines**

- Artificial Intelligence
- Information Systems & documentaries
- Software Engineering
- Object-Oriented Programming, Agent

- Logical Programming
- Human Machine Interfaces
- Linguistic (Natural language, Terminology)
- Logic (Formal Logical Reasoning)
- Psychology
- Ergonomics (HMI, user approach)
- Pedagogy & Education
- Philosophy (to ontology)
- Semiotics (signs and representations)
- Sociology & Anthropology (collective)

#### B. Investigation and questioning

The approach followed consists to identify the heritage of a region and the tourist offer existing, the points of view of the participants on the eve strategic, the tendencies and the attitudes of the tourists against the E-Heritage.

- Analyze information (internal & external).
- Set the general objectives.
- Define the strategic intelligence to achieve these objectives.
- Define the actions in terms of resources to put in tourism.

#### C. The structure of the questionnaire

The questionnaire has been built around 16 questions that have been captured and exploited. The questionnaire concerned a sample of 60 people, its distribution was done in all the Moroccan regions. It is a simple random sampling apply to the Moroccans and to foreign tourists who'sthe age is over 15 years old.

The choice of our sampling is to identify the opinion of Moroccans and foreigners, on the heritage of the Eastern region studied as well as on the idea of an E-heritage tourism application.

#### D. The means of investigation

For the purpose of analyzing the vision of Moroccan and foreign stakeholders on the heritage of the Oriental region, as well as on the E-heritage tourism application, a survey is carried out in this direction.

The tools that we have used for the collection of desired information are the two famous following studies:



**Figure 3 : The two studies used in the investigation**

It is true that the tools used vary according to the type of data sought. These two approaches have enabled us to have a

broader vision and to be able to give a more accurate interpretation of the results of this survey.

*E.  Administration of the questionnaire*

| Test | - Test of the questionnaire on a sample of 5 persons<br>- Changes at the level of the questionnaire after having tested. |
|---|---|
| **Where ?** | ▪ *Online Distribution*: for a well targetedpublication, we selected several distribution channels available online, always based on the target that interests us in our study, we note for example: Blogs, Forums, Social networks, Traveler Reviews Sites, E-mails…<br>▪ *On the ground*: At first, we anticipated that this step will not take place for our study, we were too optimistic about the extent of the Relational tourists and Moroccans on the computer system. Whereas, we were shocked by a very low return rate forthe e-mails sent. |
| **When ?** | ▪ The study is spread during the year 2016. (Approximately four months) |
| **How ?** | ▪ Export answers from a questionnaire, whose the principle is to check the answers and give the points of view on the form published online and administered in the premises of the actors respondents. |
| **Difficulties encountered** | ▪ The mobility issues.<br>▪ The lack of cooperation of some providers<br>▪ The supposed duration by questionnaire is still exceeded (Explanation of the study, definition of keywords used…) |
| **Time of realization** | ▪ *Onlinedigital form: less than 7minutes.*<br>▪ *Paper format: between 8 to 14 minutes.* |

## V.  CASE STUDY

A statistical and scientific study has been carried out, with the aim of fostering our proposed solution in the field of tourism, in order to have and ensure a communication of high level between the tourist and the different reception agents, our results are presented as follows:

- Taking into account thetourists language can give more to the national economy.
- Extract keywords from what was said by the tourist
- Propose the answers to the tourist regarding to the extracted keywords.

So it is possible to say and confirm that the adaptive communication to thetourist language has an impact on the quality of service provided, similarly, the method used by the

professionals "*texts translated into several languages*" does not respond to their needs, hence, come the need for innovation of a multilingual intelligent system of tourist assistance.

In addition, the absence of the "face to face"communicationremains an obstacle to the success of the objectives of the 2020 vision. Therefore, the establishment of a communication and tourism assistance system will allow:

- Respond to the needs of foreign tourists.
- The establishment of a working environment more close to the reality.

## VI.  CONCLUSION

The idea is to put in place a computer terminal for tourists, in order to provide some information. Starting with an "*Automatic recognition of the language*" which has been used by the tourist, then extract keywords from what the tourist said ("*automatic speech recognition*"), and then offer answers to the tourist by report to extracted keywords.

The work we have done determines the nature of the strategic objectives, the weak points, the strengths, the possible solutions and the incremental benefits to be maintained and developed.The development strategy of the Oriental region and the valorization of heritage are the main axis of the communication.

It does not doubt that our study reveals rather in the domain of a program of action which should be drawn from a series of studies of recognition, identification, exploitation, recovery and evaluation. But the realization of this program has previously needs a collection of ideas and opinions, criticisms and suggestion, for the launch of an effective strategy intended to value the heritage of the studiedregion.

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