Chapter 65
Ooredoo Rayek:
A Business Decision Support System Based on Multi-Language Sentiment Analysis of Algerian Operator Telephones

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ABSTRACT

Sentiment analysis is one of the recent areas of emerging research in the classification of sentiment polarity and text mining, particularly with the considerable number of opinions available on social media. The Algerian Operator Telephone Ooredoo, as other operators, deploys in its new strategy to conquer new customers, by exploiting their opinions through a sentiments analysis. The purpose of this work is to set up a system called "Ooredoo Rayek", whose objective is to collect, transliterate, translate and classify the textual data expressed by the Ooredoo operator's customers. This article developed a set of rules allowing the transliteration from Algerian Arabizi to Algerian dialect. Furthermore, the authors used Naïve Bayes (NB) and (Support Vector Machine) SVM classifiers to assign polarity tags to Facebook comments from the official pages of Ooredoo written in multilingual and multi-dialect context. Experimental results show that the system obtains good performance with 83% of accuracy.

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INTRODUCTION

The Algerian telecommunications business, although in full expansion, is subjecting the various economic actors involved to fierce competitiveness. Operators are therefore called upon to maintain their growth plans and gain new market share. This conquest of new segments is far from being easy and can be envisaged only by new services, providing new experiences to consumers. 5G and even 6G, constitute the bulk of new experiences provided or under development by the three Algerian operators (Mobilis, Djezzy, and Ooredoo), which require significant financial mobilization. However, aggressive investment plans are not enough for them and it is essential to support them with a quality of controlled services and with commercially viable offers. It is easy to admit that streamlined and streamlined development plans, underpinned by strategies to improve the quality of services and attractive rates, are the major issues that will determine the success of any operator in the medium and long term. It is therefore vital that any operator has carefully considered strategies, supported by analyses applied to the existing information assets, for each operator constituted by heterogeneous information (statistics, techniques, quality indicators, customer testimonials, customer complaint archives, etc.) for which operators usually provide for segmented and fully decoupled analyses.

Since the emergence of social networks such as Tweeter, Facebook and Instagram, which have become a vital communication space, Internet users express their sentiments and opinions freely. Consequently, telephone operators took advantage of this situation to provide their offers on the net and evaluate the opinions of their customers.

Nowadays, sentiment analysis (SA) in the various social media has become a topic of great importance for research, industry and development. Thus, sentiment analysis, also called opinion mining, is the field of study that exploits the opinions, sentiments, evaluations, assessments, attitudes and emotions of individuals towards entities, such as these products, services, organizations, individuals, problems, events and subjects (Liu et al., 2012). However, sentiment analysis and the extraction of opinions focus primarily on the opinions of clients who express or imply positive, negative or neutral sentiments. Although Linguistics and Natural Language Processing (NLP) have a long history, there has been little research on opinions and sentiment before the year 2000. The richness of social networks in terms of opinion, emotion and sentiment has led the interest of the research community to focus much more on issues related to the sentiment analysis of Arabic and its dialects, including Arabizi that is a form of online discussion language, where the Latin alphabet is mainly used to write words in Arabic. For example, "internet raw3a" romanized form of "ەعورتنرتنا" in Arabic that means "wonderful internet". Modern Standard Arabic (MSA) used in newspapers, movie reviews, among others, has been the subject of much research on the sentiment analysis (Abdul-Mageed et al., 2014; Rahab et al., 2018). For this purpose, a large percentage of comments written in Arabic letters in different social networks are shared in Arabic dialect and often mixed with foreign languages (French, English, etc.).

It is in the context of Business Intelligence (BI) that this work is defined, which aims to evaluate the potential of BI as a support for the development and evaluation of strategies mastered before, during and after, promoting a new customer experience.

The main research question that this work is concerned with is, "How to specify the requirements of decision-makers to support and evaluate strategies to improve the quality of operator services based on actionable information to provide a formal, grounded and concise decision?".

As a difference **to** the works related to our theme undertaken in the literature, we brought a decision support for the Ooredoo Algerian Telephone Operator through the implementation of a Sentiment