VO.I.C.E. First

VO.I.C.E. First = VOice Intelligence for the Customer Experience

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voice first

Tele perfor mance

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PUGLIA FESR-FSE 2014/2020 *Il futuro alla portata di tutti*

Improving the quality of work and, together, the speed of response to the market, changing the approach itself to the Customer Experience are the aims of the Voice First Project.
In order to carry out a profound renewal of the management method, mainly based on digitization and the introduction of AI technologies, which will allow organizational efficiency and timely monitoring of the situation of end users, it was decided to:

• create a computerized management system capable of providing decision-making support to the Customer Care operator;
• evaluate the effectiveness of the proposed solutions with respect to those already presented, carrying out, inter alia, an assessment of the "economic sustainability" of the various hypotheses.

Let's find out which solutions have been implemented, those on which the work team is continuing with the developments and the results that we have so far in the field of Speech Analysis & Voice Data Collection on Social Media Brand Monitoring & Web Data Collection.

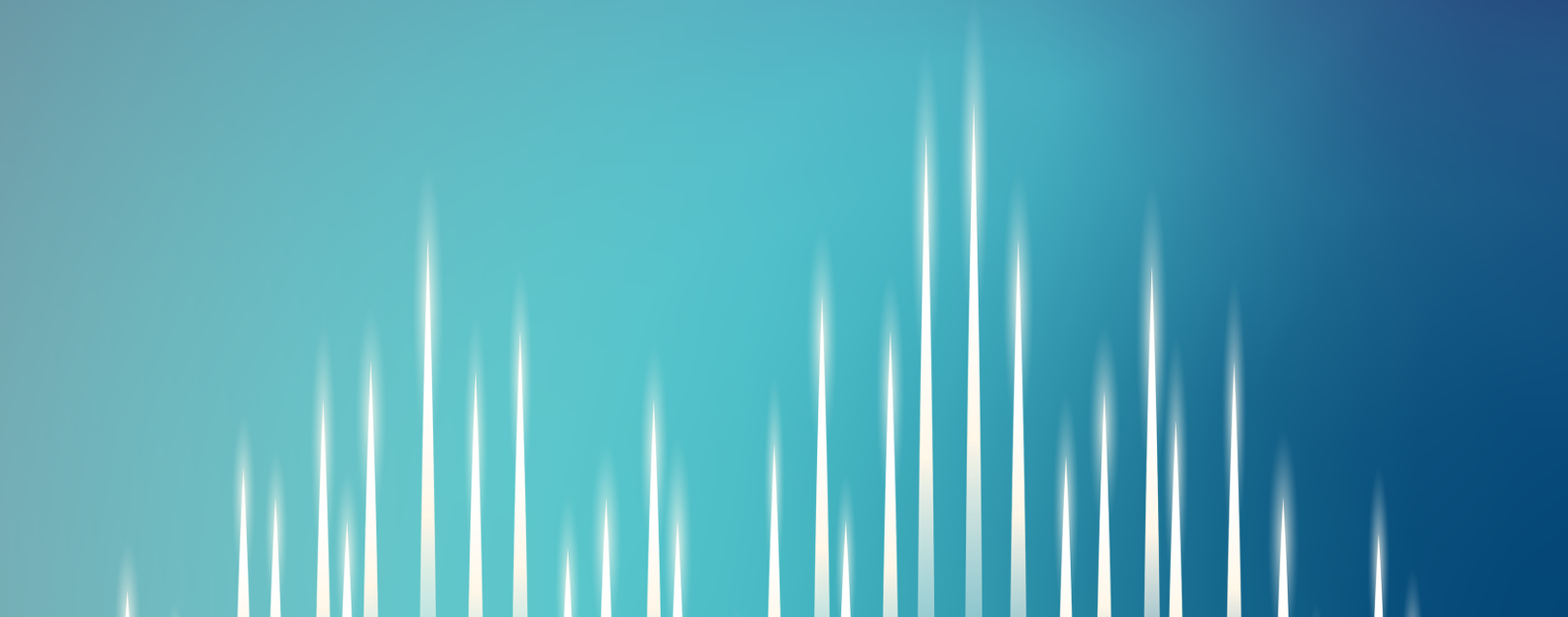
OR0 Definition of the integrated software solution

The common denominator of all the modules of the Voice First Project is represented by Artificial Intelligence and it is with Text Analysis that it is possible to define, through the analysis of the conversation between operator and customer, what is the sentiment, the topic and the keywords behind the interaction. This occurs both in real-time, through transcription of speech, and via batch by applying Text Analysis algorithms to large amounts of data, to the history of conversations and to menus, i.e. posts, articles downloaded from web and social channels. The Project provides for the development of some dashboards, including one that will support the operator during interactions with end users, providing a series of advanced features such as the propensity to purchase and the prediction of the Next Best Account. The system will be equipped with dashboards that are dedicated to those with supervisory roles in order to monitor the KPIs of the orders. The creation of virtual assistants to support both the agent and the customer is also planned. The final result of this process will allow the agent, through the dashboard, to identify the customer's sentiment, the abandonment risk, his propensity to purchase new products, the necessary steps to solve a problem. At the end of the session, the agent will be able to provide feedback that all data from the current session will be archived in order to continuously train the machine learning algorithms.

In this way, there will be a reduction in management times, an increase in the First Call Resolution and in the user and employee satisfaction indicators.

OR1 Speech Analysis & Voice Data Collection

The ongoing developments regarding Realization Goal 1 concern Voice Data Collection (audio collection of telephone conversations) and Speech to Text, i.e. the implementation of all those tools used for converting audio into text in batch and real-time mode. Speech Analysis algorithms or NLP and AI are then applied to the sentences that are composed to extract the knowledge and place it at the disposal of the operators as information baggage for the management of contacts with customers. The main intention is to extract information from conversations between end customers and contact center agents, to cluster customers and create, for example, ad hoc campaigns. The work team then intends to carry out topic modeling, automatically extracting the topics, the arguments covered in the conversation, linking them to information taken for example from the web or social networks, again with the aim of enriching the basket of information . The solution called TP Tagger was implemented, a "starting point" tool which adopts machine learning and natural language processing (NLP) methods applied to the text of the transcripts in order to create gold sets which are subsequently used for training intelligent systems and comparing classifications made by humans with those made by AI. Furthermore, it allows you to make annotations and anonymisation, meaning by the latter the removal of sensitive words. The design and development of Text Analysis services are part of the implementation of an asynchronous communication in which the various Text Analysis micro-services are "alerted", among which we mention those of Named En-TY Recognition-on, of Zeroshot Classification-on and of Topic-Modeling.



OR2 Social Media Brand Monitoring & Web Data Collection

The Web Monitoring module provides that the data coming from the web are processed and integrated into the dashboard. In fact, the mentions relating to the object of study are extracted through API calls and once collected in our DBs, they are categorized by the Text Analysis tools and the final output data is "loaded" on the dashboards. The development of the software module is related to a middleware that is interposed between the APIs and the web and social data extraction tools and the modules of the VO.I.C.E. First. This middleware integrates and regulates data in various formats coming from different sources (direct APIs of the various social networks, web scraping services or third-party suppliers) allowing the data extraction software to be easily and quickly adapted to the variation of external tools (API , suppliers, etc..).
Through the implementation of a graphical interface it will be possible to interact with the contents extracted from the web and from social networks, the menus, by applying filters relating to time range, social source, website, feed.
The case study was focused on the Social Monitoring of the energy market and of the main electricity and gas supply players in Italy, in order to identify:

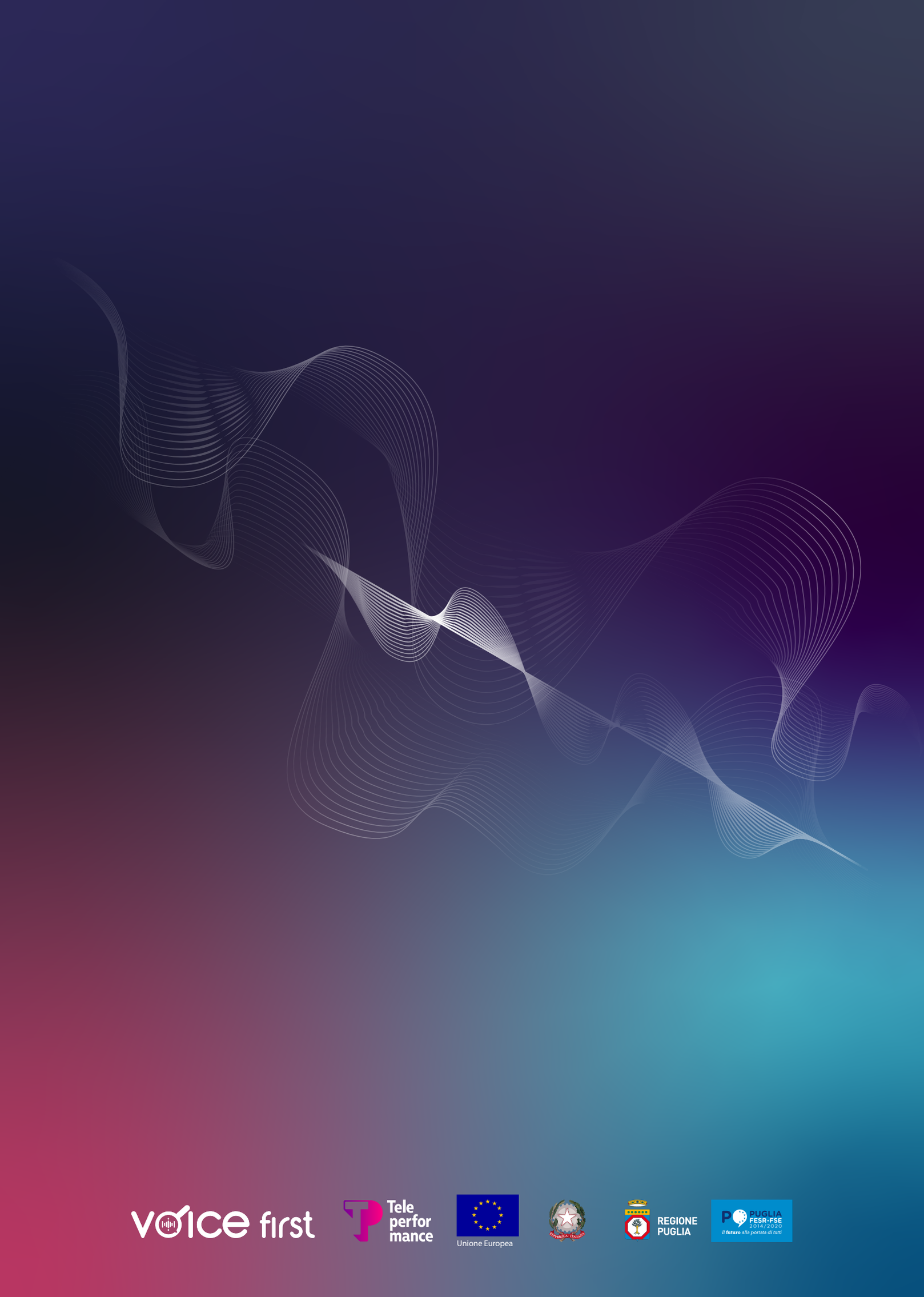
• key terms/attitudes, typical of dissatisfied customers and inclined to change energy supplier;
• potentially unfavorable market dynamics for a player;
• role of the main players in the field of energy transition, renewable energy and energy saving.

To succeed in this aim, over 100 keywords have been identified and divided according to the reference area. We then proceeded with the monitoring and subsequent analysis of the menus that were fished from all the public sources present on the web. These have been divided into two groups:

• "inpage" or all the menus taken out of the official pages of the brand (3,361 total mentions)
• “outpage” or all the mentions taken from all the other sources (20,797 total mentions)

Through the analysis of the mentions of the two groups, we identified the answers to the three study points that we set ourselves at the beginning of the research. We obtained evidence regarding the attitudes related to churn through the analysis of the inpage mentions and vice versa, through the outpage, we were able to identify both the unfavorable market dynamics for one player rather than another and the role that the main companies in the energy sector take on the three themes (energy transition, renewable energy, energy saving).

Finally, this study demonstrated how, through the analysis of public news, it is possible to infer relevant information that cannot be identified in the first instance within the immense amount of data present on the web. These indications can be exploited to bring strategic advantages over competitors, to predict trends, to identify fake news and other use cases of a different nature.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