

Capability Demonstration

Understand Online Conversations, Shape & Influence Perceptions, and Achieve Vision



ENODO
GLOBAL

“Government agencies and commercial organizations struggle to understand and manage online discussions.”

Problem:

Organizations and individuals struggle to understand how their actions are perceived and discussed across society. The lack of a transparent dialog between policy makers, business leaders, and the societies they serve is a growing concern, especially in the Middle East. The explosion of communication technologies and the continuous evolution of social media platforms is widening the divide. This creates space for unsubstantiated facts or counterproductive rumors to materialize from anyone with an online account. Compounding these challenges is the inability to make sense of, or utilize in a meaningful way, the continuous flow of unprecedented volumes of raw textual information from media outlets, social media sites, and proprietary data holdings.

Solution:

ENODO Global designs customized solutions tailored to specific social environments that transform the continual flow of data into accurate and actionable insights. We build analytical platforms optimized to the information, language, and social dynamics unique to each environment. We combine our proprietary, population-centric methodology that identifies underlying social dynamics, with natural language processing (NLP), deep-learning techniques, and social network analysis (SNA) to maximize the insights we extract from various data sources. Each custom-made platform identifies, monitors, and forecasts public sentiments, concerns, and narratives related to the strategic and operational decisions of government and business clients. Our platforms empower leaders to proactively engage key individuals, communities, and different social groups across varying segments of a society in a meaningful and constructive way.

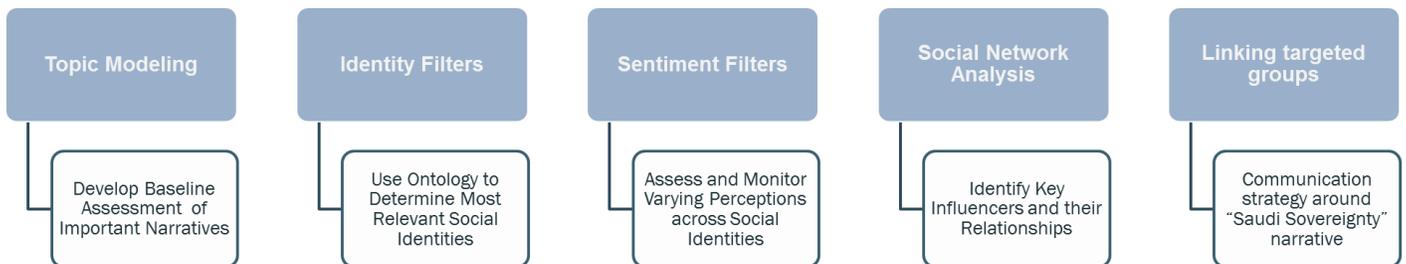
Platform:

Our analytical platforms deliver a scientific, repeatable, and dependable process. We combine advanced computation techniques with an ontology analysis of the people and topics specific to a client's environment. The ontology analysis constructs a foundation to direct our examination of the key identities, worldview, and grievances that serve as potential drivers of unrest in a given society. Insights from our ontology analysis inform the design and implementation of tailored data collection and analysis plans. The plans enable ENODO's data analysts to identify the computational tools required to accurately and efficiently assess large volumes of data from different digital sources. We optimize and integrate various tools to address the unique environments, languages, and challenges facing each client. We use these tools to identify the key topics driving the social conversation on a given issues, the public sentiments towards those topics, and the social identities that shape the conversations.



“We design our technology on data specific to the problem.”

ENODO’s innovative use of technology is enhanced by our process to analyze data. We classify information (e.g., Twitter posts, YouTube videos, newspaper articles, financial reports) across three dimensions – topic, sentiment, and identity. We use NLP and deep-learning techniques, focused on the specific language variants applied to different media platforms. *Topic Modeling* creates a baseline assessment of the most common shared themes across different individual texts to highlight the most important areas of concern within a target group or across an entire population. When analyzing social media, where the individual identity of the account creating the posts are as important as the posts themselves, we use *Identity Filters* to classify the author according to the most relevant demographic and social groups identified by our ontology. *Sentiment Filters* are applied to the specific topics to measure positive or negative perceptions and identify trends that develop over time.



ENODO Global Process Diagram

Social Network Analysis is applied to our in-depth understanding of the relevant topics, identities, and sentiments to create an additional layer of analysis. SNA identifies the online actors with the largest networks or most influence on a specific topic. It allows us to examine tens of thousands of online relationships through linkages such as followers, Re-Tweets, and likes to determine the actors whose messages are most commonly discussed and their associations with different online communities. Targeted narratives are designed on our analysis of the broad spectrum of information, the identity of key individuals, and the shared identity of the target groups. We integrate the narratives into communications strategies to shape the online discussion. They link *Critical Actors* and *Targeted Groups* around a shared identity or objective. As the narratives are disseminated into the conversation, we continually measure and monitor changes in sentiment to increase our understanding of the key individuals and networks. This process ensures real-time, actionable insights for strategic and operational decision-makers.

Demonstration:

To illustrate ENODO’s capability, we created a customized analytical platform and conducted a real-world demonstration. We applied our process and social media analysis (Twitter exploitation) to Vision 2030 to identify significant topics of interest, the sentiment towards those topics, and the key social identities driving the discussion of the topics. The demonstration delivers examples of how our technology uncovers areas for additional investigation and a more detailed understanding of the social dynamics at play in the critical Vision 2030 transformation.



“Today’s fast pace communications and vast amount of social media platforms requires constant exploitation.”

Example 1: Vision 2030 Exploitation

In the first example, we collected and exploited a sample of data related to Vision 2030. In this case, Twitter posts associated with # 2030 رؤية السعودية from 8-17 Feb., 2017. Tweets using this hashtag discussed a wide variety of topics and issues associated with Vision 2030. ENODO’s topic modeling created an initial summary baseline that uncovered the most important issues related to the successful implementation of Vision 2030. It also focused our collection and analysis efforts on the dominant sub-topics discovered within the demonstration timeline. Our analysis identified sub-topics clustering around the five major topics listed in the below table.

Top Five Topics Associated with رؤية 2030
Concern about Public Finances and Prices
Conglomerates and Banking
Education and Training
Employment
Saudi Government Personalities and Entities

Example 2: Topic Sentiment Analysis

The second example evaluated how people perceived the key topics uncovered by Vision 2030 exploitation. The demonstration concentrated collection and analysis activities on the public finances and prices concern by examining the sentiments associated with hashtags; #الشعب يعارض بيع أرامكو ("the people against the sale of Aramco") for concerns about the company’s upcoming IPO and #رفع الدعم عن الخبز (lifting subsidies on bread") expressing discontent with false rumors about the removal of bread subsidies. We measured the sentiment of individual tweets and the impact of that sentiment on the issues being discussed. The following table illustrates that both widely used hashtags were associated with tweets that contained strongly positive sentiments towards the goals of each tag. In other words, tens of thousands of people expressed support for maintaining public ownership of Aramco and retaining bread subsidies.

Hashtag	Approximate Tweets	Assessed Sentiment
#الشعب يعارض بيع أرامكو	51,000	86% Positive
#رفع الدعم عن الخبز	46,000	90% Positive

Example 3: Pinpoint Social Identity

The final example identified important social identities and narratives associated with the two hashtags. We created identity filters that revealed specific target groups based on common beliefs: Supporters of the Government’s Agenda, Supporters of Opposing Agendas, and Conservatives. We analyzed thousands of tweets from prominent users associated with these identities (e.g. @dr_alqarnee for Conservatives) to build narrative models of the target groups. We then measured the similarity between each tweet on the subtopics to these narrative models. Our analysis confirmed that the vast majority of tweets with these hashtags were most similar to the narratives used by Supporters of Opposing Agendas group, given the strong sentiments against planned or rumored government policies. More interestingly, there was relatively little



“At ENODO, we listen to and understand emotions so you have a chance to influence the outcome.”

conservative religious rhetoric used in these tweets, suggesting that Saudi society viewed these issues more through a socioeconomic or political lens, rather than a religious one.



Findings:

This demonstration provides a real-world example of ENODO’s capability and the process involved in our analysis of social media data. The examples illustrate the cumulative nature of the insights we derive from our process. It also highlights the need for proactive engagement with key influencers and networks via social media. The examples bring to light how the majority of narratives and sentiment specific to Vision 2030 and the Kingdom’s economic reform programs are propagating negative sentiment, in some cases through false statements or misinformation.

A more detailed assessment built on a comprehensive ontology, covering a longer timeframe, with optimized sentiment and identity filters would enable ENODO to deepen our understanding of Vision 2030 social concerns by:

- Determining if the five key topics are enduring issues of concern
- Providing early-warning of additional topics that may gain the public’s attention
- Uncovering specific grievances driving sentiment presented in the second table
- Forecasting sentiment trends and how they change in relation to policies
- Refining Identity Filters to assess how sentiments vary across additional social groupings
- Identifying opportunities to provide targeted messages to each group

Conclusion:

ENODO’s innovative use of advanced technology and continuous analysis of new information, through a social lens, delivers a viable alternative to existing attempts to manage the online domain. It provides government and commercial entities the ability to understand the pulse of online narratives. It produces accurate, in-depth insights into real-time perceptions on social, economic, and political debates. Our platforms enable clients to identify, monitor, and forecast public sentiments, concerns, and narratives before they derail initiatives. Most importantly, it enables clients to implement proactive campaigns that shape the discourse, influence perceptions, and achieve objectives.





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