Complex Business Ecosystem Intelligence Using AI-Powered Visual Analytics

The article discusses an interactive text mining and visual analytics system designed for business ecosystem intelligence. This system utilizes text mining and visual analytics to help users **explore and analyze unstructured textual data**, providing valuable insights into companies, industries, markets, and trends.

The system mentioned in the article is a hypothetical or conceptual system that the authors of the article are proposing and discussing. It's a system they envision for interactive text mining and visual analytics used for business ecosystem intelligence. In other words, the article is describing the concept and functionalities of such a system, but it’s not necessarily an existing or implemented software.

This system would be composed of : A user interface, a searching engine, a continuous downloading option, a visualization panel, including visualization controls, some filters, and a result panel.

Firstly, the **user interface** is used by the system to introduce by showing the different sections, the network charasteristics, the visualization options, and by filtering controls ans listing documents. Then, users can select a focus domain data repository and specify a query. The system employs a **flexible search query approach** to retrieve relevant documents using the Northern Light (NL) search engine. The **different search options** allow the users to customize their requests with options like search order, search field, search period, sources, and language to refine search results.

In order to manage some large volumes of search results (to analyse unstructured texutal data), the system implements **continuous downloading**, allowing users to retrieve additional documents in increments.

Then the **visualization pane**l uses network representation to display relationships between entities mentioned in the documents. Users can apply network pruning algorithms for readability.

The system offers controls like force on/off, labels on/off, edges on/off, zoom, pan, and fit-to-screen for **enhanced visualization**, users can specify node and edge-level characteristics as well as time ranges to filter and explore the network.

The users can choose network pruning algorithms, thanks to the system enabling network files or data export as images. Then, in order to for the documents to be sorted and searched, information about the network and a paginated list of retrieved documents are provided by the **results panel**. Users can interact with the network visualization by hovering over nodes and edges, clicking on nodes or edges to filter documents, and double-clicking nodes to trigger new queries.

For the **implementation** of the system, the software used are : d3.js, CSS, and angular.js, utilizing the NorthernLight Millie API.

Implications : This system, providing visual analytics, could be used for business intelligence. Combining text mining and visual analytics to enhance decision-making and understanding of complex business systems highlights the role of the interactive visual analytics system in extracting actionable insights from unstructured data.