**Highlights:**

1. **Distributed Semantic JDL Fusion Framework**: Introduces a distributed version of the JDL model, optimizing decision-making and data fusion across edge, fog, and cloud layers, ensuring faster and more efficient processing for smart city applications.
2. **Horizontal and Vertical Data Fusion**: Introduced horizontal fusion (combining data from different concepts) and vertical fusion (combining data of the same concept at different scales) for more robust decision-making.
3. **Efficient Distributed Query Execution**: Breaks down independent and complex queries into sub-queries, executing them in parallel across worker and master nodes, significantly reducing query execution time and optimizing memory and network bandwidth usage.
4. **Reduced Network Load**: By processing data locally at the edge, only the processed results are transmitted to higher layers, minimizing network bandwidth utilization and enhancing overall network efficiency.
5. **Enhanced Data Privacy**: Maintains privacy by processing data locally and avoiding the transmission of raw data across the network, addressing privacy concerns commonly found in centralized systems.
6. **Support for Dynamic and Complex Queries**: The framework efficiently handles the dynamic execution of complex queries introduced during runtime, outperforming previous models focused on predefined queries.