

The article "Leveraging Big Data" by Alejandro Vera-Baquero, Ricardo Colomo-Palacios, and Owen Molloy discusses the integration of big data analytics into business performance management (BPM) to improve the analysis and execution of business processes. Here's a comprehensive review of the article:

## Summary

The article emphasizes the importance of business processes in organizations and how these processes drive critical success factors such as cost, quality, and time. As organizations mature in BPM, they accumulate large repositories of process models, creating a need for effective analysis of this data. The authors propose a cloud-based architecture that integrates big data analytics to enhance the visibility and performance of business processes.

## Key Points

### 1. Challenges in Current BPM Practices:

Traditional BPM approaches struggle with the timely analysis of large volumes of unstructured event data generated by complex supply chains.

Existing frameworks, like the Framework for Business Process Analytics (F4BPA), have limitations in distributed environments due to issues with data integration and latency.

### 2. Proposed Architecture:

**Cloud-Based Infrastructure:** The proposed architecture leverages cloud computing to provide low-latency response rates and enables continuous improvement of business processes through rich, informative environments.

**Local and Global Analytics:** The system is composed of local Business Analytics Service Units (BASUs) that handle analytics within individual organizations and a Global Business Analytics Service (GBAS) that integrates these units to analyze cross-organizational processes.

**Event Model:** An event-based model using the Business Process Analytics Format (BPAF) is proposed to represent and analyze business events, facilitating the correlation of events across distributed systems.

### 3. Implementation and Tools:

The architecture utilizes various open-source projects such as Apache Hadoop, HBase, and Hive to manage big data storage and processing.

The BASU components transform event data into an extended BPAF format, store it in big data tables, and enable distributed queries for comprehensive analysis.

#### 4. Benefits and Insights:

The architecture provides real-time business intelligence, activity monitoring, and collaborative analytics. It enables organizations to understand past events, evaluate current operations, and predict future process behaviors.

Performance data collected from tests showed efficient read and write operations, maintaining consistency even with large datasets.

#### 5. Limitations and Future Work:

- The distributed processing introduces overhead and latency issues as the number of nodes increases.
- Future work may address these challenges by optimizing the network and processing efficiency.

#### Strengths

**Comprehensive Framework:** The article provides a detailed framework that integrates big data analytics with BPM, addressing a critical need in modern organizations.

**Use of Open-Source Tools:** The practical implementation using widely adopted open-source tools makes the proposed architecture accessible and feasible for many organizations.

**Focus on Real-Time and Predictive Analytics\*\*:** By enabling real-time monitoring and predictive capabilities, the framework helps organizations stay agile and responsive to changes.

#### Weaknesses

**Complexity of Implementation:** The proposed system involves sophisticated technologies and may require significant expertise and resources to implement and maintain.

**Scalability Concerns:** While the framework is designed to handle large datasets, the article acknowledges that network latency and processing overhead can become significant issues in highly distributed environments.

## Conclusion

The article effectively highlights the integration of big data analytics into BPM to improve business process performance. The proposed architecture offers a robust solution for analyzing large volumes of event data in real-time, providing valuable insights for organizational decision-making. However, the complexity of implementation and scalability concerns need to be addressed to fully realize the potential of this approach. Overall, the article contributes significantly to the field of BPM and big data analytics, offering a practical framework for organizations seeking to leverage their data for better performance management.