ABSTRACT

The rapid development of digital advertising has accelerated the automation of media transactions through Programmatic Advertising. However, the traditional Waterfall auction method used by Supply-Side Platforms (SSPs) often leads to limited system responsiveness, reduced revenue potential, and a lack of transparency due to its sequential bidding process. This study aims to design a system solution by implementing the Header Bidding method, where requests from Demand-Side Platforms (DSPs) are processed in parallel, enabling a more competitive, fair, and measurable auction environment.

The system design follows a Business Process Management (BPM) approach, particularly through heuristic process redesign, to reconfigure the digital advertising workflow to be more adaptive to market and technological dynamics. The implementation is evaluated using the Friendly User Testing (FUT) method with identical campaign parameters to compare the performance of Header Bidding against the Waterfall model. Results indicate that Header Bidding significantly increases DSP participation, bid request volume, and overall revenue, despite a trade-off in the form of a lower fill rate.

Overall, this study demonstrates that implementing Header Bidding with BPM-based process redesign can enhance auction performance and provide strategic direction for developing a more responsive and business-driven programmatic advertising ecosystem.

Keywords – Programmatic Advertising, Header Bidding, Waterfall Auction, Business Process Management, Heuristic Redesign.