Beyond Self-Reports: Evaluating Neurophysiological Measures of Attention and Recall in Digital Advertising

Marco Mandolfo[a]*, Giuliano Noci[a]

[a] Department of Management, Economics, and Industrial Engineering, Politecnico di Milano, Milan, Italy

* Corresponding author: Marco Mandolfo, Politecnico di Milano, Department of Management, Economics, and Industrial Engineering, Via Lambruschini 4/B, Milan, 20156, Italy. Email: marco.mandolfo@polimi.it

Abstract. While digital advertising holds promise for growth, it still faces challenges in efficiently measuring its impact. This study aims to evaluate the contribution of neurophysiological responses in measuring attention to advertising and their relationship to extant measures of recall for embedded brands. Employing eye-tracking, electroencephalography, and electrodermal activity, we compare attention-related neurophysiological measures and assess them against traditional self-reports in a controlled experimental study. The results show that ocular dwell time and cortical activity as significant predictors of attention. Also, we show that combining ocular and cortical measures can enhance the prediction of brand recall, providing a more accurate measure than self-reported attention. The study advances the methodological discourse on measuring advertising effectiveness, offering insights into the selection of consumer neuroscience tools. It also discusses the potential for new advertising revenue models contributing to the formulation of performance-based revenue models.

Keywords: Digital Advertising; Advertising metrics; Attention-Based Advertising; Consumer Neuroscience; Biometrics; Eye-tracking.