

From Neurons to Conversions: A Systematic Synthesis of Neural Biomarkers for Digital Advertising Success

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ABSTRACT

Every day, billions of digital “clicks” are recorded, yet the subconscious triggers that precede them remain invisible to traditional analytics. While a decade of neuro-scientific inquiry has sought to map the “buying brain,” the findings remain siloed in disparate laboratories. This research utilises secondary data to decode the universal neural signatures of digital purchase intent. This paper looks at the brain and body signals that show when a consumer stops just looking at something and starts deciding to click or buy. Using brain science data (fMRI, EEG, eye-tracking), we found three main signs that this critical shift in thinking is happening: Brain Wave Sign (FAA), which is a specific change in frontal brain waves that shows the person is motivated to approach a goal Reward Signal (Dopamine), which is a brief burst of activity in the brain’s reward centre (ventral striatum), meaning they feel desire or see value in the item Eye Response (Pupil Size), where their pupils get bigger, meaning their brain is working hard and processing information intensely. The intended synthesis will explore a potential “Neural Friction” paradox: the hypothesis that high-arousal digital ads, while successfully triggering reward centres, simultaneously spike cognitive load, leading to a “system override” that prevents the final click. The primary goal of the re-analysis is to find whether the most effective digital ads are those that whisper to the subconscious rather than scream at the prefrontal cortex.

Keywords: The Buying Brain, Neural Signatures, Brain Wave Sign, Neural Friction, Brain Science, EEG (Electroencephalogram)

