

Dark Patterns and Nudging in Digital Marketing: A Systematic Literature Review and Ethical Assessment in the Context of the EU AI Act

Štefan Žák, Mária Hasprová

Bratislava University of Economics and Business, Slovakia

Abstract

The accelerating integration of artificial intelligence into digital marketing has substantially amplified both the sophistication and the ethical ambiguity of techniques designed to influence consumer behaviour. Dark patterns — deceptive user interface design choices that manipulate users into unintended actions — and nudging strategies represent particularly significant concerns in contemporary digital commerce, with empirical evidence demonstrating that biased personalized recommendation systems can drive suboptimal consumer choices in up to 96.7% of exposed cases. Despite growing regulatory attention, the academic literature on these phenomena remains fragmented across disciplines and lacks a coherent typological framework grounded in consumer psychology. This paper addresses this gap through a systematic scoping review conducted in accordance with the PRISMA-ScR protocol, drawing on peer-reviewed studies indexed in Web of Science published between 2015 and 2025. The review identifies, classifies, and critically analyses the principal typologies of dark patterns and nudging mechanisms deployed in digital environments, evaluating their documented effects on consumer emotional and cognitive decision-making. Five dominant conceptual frameworks are identified and comparatively assessed: the personalization paradox model, the algorithmic information architecture framework, the multi-level AI ethics model, the configurational cognitive-affective approach, and the biased product recommendation model. The findings are contextualised against the ethical and regulatory provisions of the EU AI Act, the Digital Services Act, and the General Data Protection Regulation. The paper concludes by proposing a consolidated typological framework for manipulative digital techniques and formulating ethical assessment criteria for their deployment in marketing practice. Implications are discussed for marketers, platform designers, and policymakers, with particular emphasis on protecting younger consumer cohorts, specifically Generation Z and Generation Alpha, who represent the primary targets of AI-driven influence architectures in digital commerce.

Keywords: consumer manipulation; algorithmic personalization; consumer decision-making; consumer protection; generation Z