

## **Brand with a Purpose in the Pharmaceutical Industry: An Analysis Using Agent-Based Modeling**

### **Abstract**

Due to its regulatory constraints and ethical considerations, the pharmaceutical industry faces unique challenges in integrating brand purpose with societal expectations. This paper examines how a leading US pharmaceutical company effectively approaches social responsibility while complying with industry-specific strict regulations, such as developing unbranded communication. This research employs Agent-Based Modeling (ABM) to simulate stakeholder interactions and assess the impact of different marketing and corporate communication interventions on stakeholders' perceptions and the effectiveness of disease awareness campaign objectives. Our findings suggest that a holistic strategy combining communication, education, institutional support, and digital innovation is critical for navigating social responsibility while maintaining regulatory compliance and protecting brand reputation. Our research also holds significant managerial implications for pharmaceutical practitioners and those operating in other similar complex industries.

**Keywords:** corporate communication; marketing communication; purpose-driven brand; Agent-Based Modelling; brand reputation; pharmaceutical industry.

### **Introduction**

Nowadays, restructuring brand communication strategies is crucial to meeting marketing goals and the demand for authentic, reliable partnerships that co-create value with stakeholders (Andriof et al., 2002; Aksoy et al., 2022). Brands must adopt a more integrated approach to communication and reputation management that considers the shift in power from producers to consumers (Dwivedi et al., 2021). With the rise of digital platforms and social media, consumers have greater access to information and influence over brand perceptions, creating an environment where trust and engagement are pivotal (Romoli Venturi et al., 2022). Effective marketing and corporate communication alignment is crucial to safeguard and enhance a brand's purpose and reputation (Balmer and Ilija, 2012; Casalegno et al., 2024). However, academics and managers are still seeking effective ways to integrate these functions, mainly when dealing with stakeholders with conflicting objectives. This is especially true in the pharmaceutical industry, where strict regulations, complex industry dynamics, and audience expectations regarding societal issues further complicate stakeholder management. This expectation necessitates integrating brand purpose with business strategies to create authentic societal value in a landscape of growing stakeholder awareness and skepticism (Casalegno et al., 2021).

This paper explores how a US pharmaceutical company, operating under stringent regulatory constraints globally, navigates the social responsibility landscape and builds relationships with stakeholders while adhering to industry regulations. By analyzing the company's marketing and communication current strategies, particularly in disease awareness campaigns, we aim to provide insights into how to effectively integrate

marketing and corporate communication to maintain a purpose-driven brand and predict future developments, which could also inform managers in other industries. We employ Agent-Based Modeling (ABM) to simulate interactions between the company's brand and its stakeholders. ABM allows us to create a dynamic model reflecting the complex environment in which the company operates, exploring how different communication strategies influence stakeholder perceptions and behaviors over time.

### **Literature Review**

Scholars emphasize that a strong brand purpose aligns business operations with societal needs, creating shared value that benefits the organization and its stakeholders (Holt, 2004; McCracken, 1989). Brands with purpose are asked to deliver why a company exists rather than what it does (Freeman, 2017). This shift towards a purpose-driven approach becomes crucial in environments where public trust in institutions is fragile, and consumers demand greater accountability from businesses. Integrating brand purpose with social responsibility is particularly intricate in heavily regulated industries such as pharmaceuticals, especially when firms operate in public health (Ribero et al., 2019). Firms are bound by stringent communication rules and ethical considerations that curb traditional marketing approaches. In this sector, the ability to communicate purpose effectively while adhering to regulatory frameworks is essential and urgent for building credibility and trust among stakeholder groups, including patients, healthcare professionals, regulators, and the general public (Dutta & Pullig, 2011; Krendyokov et al., 2020).

Given these challenges, effective brand purpose communication involves balancing being perceived as a genuine contributor to societal good and avoiding the pitfalls of appearing insincere or overly opportunistic (Jacob, 2018). In this context, the synergy between marketing and corporate communication becomes crucial (Kitchen and Schultz, 2003).

### **Methodology**

We utilize Agent-Based Modeling (ABM) to analyze the pharmaceutical company, its stakeholders, and all aspects of its disease awareness campaigns. ABM is a computational method that simulates agents' interactions to assess their effects on the system. ABM is beneficial in exploring complex systems and predicting outcomes of various strategic interventions. In marketing, ABM can help simulate consumer behavior, market dynamics, and the impact of marketing strategies on brand perception (Rand and Rust, 2011).

**Preliminary study:** Disease awareness campaigns in the pharmaceutical industry aim to educate the public about specific health conditions through unbranded communication. These campaigns involve multiple stakeholders, including healthcare professionals, patient associations, and regulatory bodies. Also, influencer engagement is key to maintaining regulatory compliance while effectively reaching target audiences. The US pharmaceutical company under investigation was the first in the sector to develop a peculiar disease awareness campaign, emphasizing social responsibility and the protection of its brand reputation. The primary strategic objectives are to raise public awareness about diseases while maintaining the

company's reputation without directly promoting its products. The company has clearly defined roles and responsibilities across various teams. First, the marketing team initiates the campaign and collaborates closely with the communication, academics, and medical teams. The communication team focuses on content creation and dissemination, coordinating with influencers, and ensuring compliance with regulatory standards. The medical team provides accurate medical information, validates all contents, and supervises health-related communications, while the regulatory team ensures that all communications comply with relevant legal and ethical standards. The company utilizes a variety of content channels to reach its target audiences, including social media platforms such as Instagram, Facebook, and TikTok, which are used for visual content, community engagement, and educational videos. A dedicated website - "Vicini di Pelle" - is a central hub for providing information and resources on patient diseases. The company employs specific campaign tactics to further its objectives, such as unbranded communication and avoiding the spread of misinformation. Despite these efforts, the company faces several challenges in maintaining regulatory compliance, ensuring continuous engagement, and combating misinformation. Navigating strict advertising regulations requires carefully using unbranded content and a rigorous internal review process. Audience engagement requires regular content updates, interactive formats, and active social media monitoring.

### **Results Discussion**

Agent-based modeling (ABM) simulates interactions between multiple actors—such as pharmaceutical company, communication agencies, hospital boards, physicians, associations, and the general audience—to understand how different strategies impact awareness, engagement, and healthcare system efficiency. The results reveal many possible scenarios, and we discuss the most relevant ones hereby. The first scenario focused on supporting scientific research and networking within healthcare institutions, such as hospital boards and physicians, but lacked a comprehensive communication strategy. Despite substantial funding for research and efforts to engage healthcare professionals, the results showed that these actions alone did not significantly improve public awareness or diagnostic accuracy for the targeted disease. The simulation revealed that without robust communication efforts to inform and engage the general audience and associations, even well-supported institutional actions failed to generate widespread impact.

Similarly, scenario 2 tested the effects of investing primarily in mass communication campaigns without sufficient networking and institutional engagement support. This scenario also demonstrated that communication efforts increased short-term visibility but did not translate into sustainable awareness or enhanced healthcare system responsiveness. The lack of coordinated support from scientific communities and hospital networks prevented the growth of a comprehensive response to the disease, ultimately leading to a decline in engagement levels and diagnostic effectiveness. In contrast, scenario 3 presented a more integrated approach, combining high direct and mass communication levels with formation activities for physicians and associations. This combined strategy improved awareness, engagement, and diagnostic accuracy,

indicating that simultaneous investment in multiple domains—communication, education, and networking—yields more effective outcomes. However, the model also highlighted potential risks. Without sustained support from hospital boards, initial engagement and diagnostic accuracy gains could diminish over time due to a lack of institutional reinforcement and resource allocation. Scenario 4, which employed moderate but widespread efforts across all channels, demonstrated the highest effectiveness in achieving long-term awareness and engagement. Through a balanced mix of communication activities, scientific support, and institutional networking, we could witness improvements across all metrics, from healthcare system efficiency to diagnostic accuracy.

The introduction of digital tools, as tested in scenario 5, also proved highly effective. Focusing on data management system implementation and a screening application—combined with moderate efforts in communication and networking—demonstrated a strong impact on system-wide performance. The simulation showed that digital tools could enhance scientific research capabilities and public engagement. However, despite advanced technology, minimal levels of traditional communication and networking were necessary to maintain effectiveness, highlighting the complementary role of digital and traditional methods.

### **Conclusion and implications**

Overall, our research suggests that a holistic strategy combining communication, education, institutional support, and digital innovation is critical for pharmaceutical companies to navigate social responsibility effectively while maintaining regulatory compliance and protecting brand reputation, even when communication must be unbranded. These findings provide actionable insights for other sectors that balance purpose-driven communication with stakeholder engagement, reinforcing the importance of integrating diverse approaches to achieve long-term brand objectives.

Companies should engage with healthcare institutions and professionals and ensure robust communication efforts that reach the general population and patient associations. Additionally, leveraging digital tools, such as data management systems and screening applications, can enhance public engagement and healthcare efficiency while still requiring a foundation of traditional communication and networking efforts. Results also suggest that industries facing similar constraints should adopt a multi-pronged strategy that aligns different functions and resources toward common goals. This approach ensures that every strategy is balanced, thus reducing risks associated with stakeholder misalignment or resource misallocation. Effective integration between marketing and corporate communication is critical to achieving consistency and coherence in messaging, fostering stakeholder trust, and reinforcing the brand's purpose and reputation. To ensure brand protection, managers are advised to develop strategic plans incorporating diverse methods—such as targeted communication campaigns, stakeholder education programs, and digital innovation.

### **References**

Aksoy, L., Banda, S., Harmeling, C., Keiningham, T. L., & Pansari, A. (2022).

Marketing's role in multi-stakeholder engagement. *International Journal of Research in Marketing*, 39(2), 445–461

Andriof, J., Rahman, S. S., Waddock, S., & Husted, B. (2002). Introduction: JCC theme issue: Stakeholder responsibility. *The Journal of Corporate Citizenship*, 16-19.

Balmer, J. M., & Illia, L. (2012). Corporate communication and corporate marketing. *Corporate Communications: An International Journal*, 17(4).

Casalegno, C., Civera, C., & Cortese, D. (2021). COVID-19 in Italy and issues in the communication of politics: bridging the knowledge-behaviour gap. *Knowledge Management Research & Practice*, 19(4), 459-467.

Casalegno C., Civera C., Candelo, E., Romoli Venturi, R. (2024), Bridging Corporate Communication and Marketing Narratives for Organizational Success: How Collaboration Happens, *Sinergie - Italian Journal of Management*, forthcoming issue, pp. 1-18

Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., ... & Wang, Y. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International journal of information management*, 59, 102168.

Dutta, S., & Pullig, C. (2011). Effectiveness of corporate responses to brand crises: The role of crisis type and response strategies. *Journal of Business Research*, 64(12), 1281-1287.

Freeman, R. E. (2017). Five challenges to stakeholder theory: A report on research in progress. In *Stakeholder management* (pp. 1-20). Emerald Publishing Limited.

Holt, D. B. (2004). *How brands become icons: The principles of cultural branding*. Harvard Business Review Press.

Jacob, N. T. (2018). Drug promotion practices: A review. *British journal of clinical pharmacology*, 84(8), 1659-1667.

Kitchen, P. J., & Schultz, D. E. (2003). Integrated corporate and product brand communication (1). *Journal of Competitiveness Studies*, 11(1), 66.

Krendyukov, A., & Nasy, D. (2020). Evolving communication with healthcare professionals in the pharmaceutical space: current trends and future perspectives. *Pharmaceutical Medicine*, 34(4), 247-256.

McCracken, G. (1989). Who is the celebrity endorser? Cultural foundations of the endorsement process. *Journal of consumer research*, 16(3), 310-321.

Rand, W., & Rust, R. T. (2011). Agent-based modeling in marketing: Guidelines for rigor. *International Journal of research in Marketing*, 28(3), 181-193.

Ribero, S., Dapavo, P., Casalegno, C., HS Awareness Working Group, Alaibac, M., Argenziano, G., ... & Zalaudek, I. (2019). Improving the disease awareness: how a communication campaign brings hidradenitis suppurativa to the light. *Journal of the European Academy of Dermatology and Venereology*, 33, 7-9.

Romoli Venturi, R. R., Casalegno, C., & De Palma, P. (2022). *Comunicazione integrata e PR: istruzioni per l'uso: strategie, strumenti e tecniche nel secolo della trasparenza*. FrancoAngeli.