

## AI's Operational Capabilities in Fashion Retail Distribution: Navigating Organizational Agility, Creativity, and Innovative Culture for Market and Operational Performance

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### Introduction

At the dynamic crossroads of technology and fashion, Artificial Intelligence (AI) stands out as a key player set to transform the fashion retail sector. AI, characterized by its capacity to execute tasks that mimic human cognitive functions, is heralded as a groundbreaking technology with significant implications for organizational operations (Fu et al., 2023). Especially in fashion retail distribution, which refers to the series of processes and activities involved in getting fashion products from designers or manufacturers to their final delivery to consumers, the application of AI is extensive (Mollá-Descals et al., 2011; Swazan & Youn, 2023). These range from inventory management and forecasting trends to automating in-store experiences. These applications not only streamline operational processes but also infuse organizations with the agility and creativity necessary for optimal organizational performance (Sullivan & Wamba, 2024). Although prior studies have shown the promising role of AI in supporting fashion retail organizations (Jin & Shin, 2020; Swazan & Youn, 2024), empirical evidence is limited on how AI's operational capabilities in fashion retail distribution influence the organizations' responses and adaptability to market changes.

This research, grounded in the Dynamic Capabilities Theory (Teece et al., 1997), investigates the influence of AI's operational capabilities in fashion retail distribution on the organization's agility and creativity for innovation, ultimately leading to improved market and operational outcomes. Furthermore, existing research highlights the significance of an organization's culture in comprehensively grasping how agility and creativity impact firm performance. Therefore, this study further examines the moderating effect of an innovative organizational culture on the relationship between AI-enhanced agility, creativity, and firm performance.

### Literature Review

Dynamic Capabilities Theory focuses on an organization's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing surroundings (Teece et al., 1997). Firms demonstrate dynamism in capabilities by adapting strategies (such as AI) to changing market conditions and creatively combining existing resources in innovative and unconventional ways (Sullivan & Wamba, 2024). In our study context, this theory posits that AI's operational capabilities in fashion retail distribution act as critical enablers for a company's adaptive strategies. The operational capabilities of AI include: *information accessibility*, refers to how AI systems enable employees to easily and effectively access information; *operation flexibility*, refers to AI's ability to adapt and respond to various needs and changing demands; *data integrability*, refers to AI's proficiency in consolidating and integrating data from diverse sources within an organization; and *service reliability*, refers to the dependability and consistent performance of AI systems (Chiu et al, 2021). Furthermore, to understand how fashion retail

companies are adapting their business strategies by incorporating AI systems, we suggest examining their AI-enhanced organizational agility and creativity. *Organizational agility* refers to a firm's capacity to adapt swiftly and effectively to changes in market opportunities (Tallon & Pinsonneault, 2011), and *organizational creativity* is the capacity of a firm to generate and foster an environment conducive to producing novel and useful ideas and products (Lee & Choi, 2003).

By effectively responding to market variations and fostering creativity, an organization finally achieves enhanced market and operational performance. *Market performance* refers to a firm's ability to enter new markets and achieve a higher market share compared to competitors, while *operational performance* denotes a firm's superiority in productivity, profit rate, and revenue relative to its competitors (Gupta & George, 2016). Moreover, our study suggests the moderation role of an *innovative organizational culture*, which refers to an organization's strong emphasis on the necessity for innovation and flexibility in regulations to support innovative approaches (Zhou et al., 2005). Such a culture can amplify or diminish the impact of AI-enhanced agility and creativity on firm performance. Thus, the following hypotheses are proposed:

**H1-H2:** Perceived operational capabilities of AI—(a) information accessibility, (b) operation flexibility, (c) data integrability, and (d) service reliability—will significantly enhance (H1) organizational agility and (H2) organizational creativity.

**H3-H4:** AI-enhanced (H3) organizational agility and (H4) organizational creativity will significantly improve (a) market performance and (b) operational performance.

**H5:** Innovative organizational culture will significantly moderate the relationship between AI-enhanced organizational agility and (a) market performance and (b) operational performance.

**H6:** Innovative organizational culture will significantly moderate the relationship between AI-enhanced organizational creativity and (a) market performance and (b) operational performance.

### Method

An online survey was developed, and data were collected through an online market research firm in the U.S. Three screening questions were asked to ensure that the targeted participants were fashion retail distribution employees within the U.S. who were using AI in their job duties. The survey instruments asked questions about the operation capabilities of AI (Chiu et al, 2021; Nelson et al., 2005), organizational agility (Tallon & Pinsonneault, 2011), organizational creativity (Lee & Choi, 2003), innovative culture (Zhou et al., 2005), market and operational performance (Gupta & George, 2016). A total of 318 responses were used for the final data analysis. About 62% work in the inventory management department, followed by store management (17%) and logistics (10%). This study employed PLS-SEM using SmartPLS.

### Result and Discussion

After examining the measurement model, PLS-SEM path results indicated that the operational capabilities of AI: information accessibility, operation flexibility, data integrability, and service reliability significantly enhanced organizational agility (H1a:  $\beta = 0.249$ ,  $p < .001$ ; H1b:  $\beta = 0.268$ ,  $p < .001$ ; H1c:  $\beta = 0.272$ ,  $p < .001$ ; H1d:  $\beta = 0.146$ ,  $p < .05$ ) and only information accessibility and data integrability significantly enhanced organizational creativity (H2a:  $\beta = 0.232$ ,  $p < .05$ ; H2c:  $\beta = 0.273$ ,  $p < .005$ ). Moreover, AI-enhanced organizational agility and organizational creativity significantly improved market performance (H3a:  $\beta = 0.469$ ,  $p < .001$ ;

H4a:  $\beta = 0.474, p < .001$ ) and operational performance (H3b:  $\beta = 0.422, p < .001$ ; H4b:  $\beta = 0.486, p < .001$ ). The moderation results show that innovative organizational culture positively moderated the relationship between organizational agility and market performance (H5a:  $\beta = 0.101, p < .05$ ), while it negatively moderated the relationship between organizational creativity and market performance (H6a:  $\beta = -0.092, p < .05$ ).

### Conclusion

The findings of this study hold significant implications. These findings contribute to the strategic management literature by highlighting how AI acts as a lever for competitive advantage in the rapidly evolving fashion retail landscape. Managerially, the differential impact of AI capabilities on agility and creativity offers actionable insights for fashion retail organizations on where to focus their AI development efforts. Specifically, investing in AI technologies that enhance information accessibility and data integrability could be more critical for developing organizational creativity, while a broader range of AI capabilities supports agility.

### References

- Chiu, Y. T., Zhu, Y. Q., & Corbett, J. (2021). In the hearts and minds of employees: A model of pre-adoptive appraisal toward artificial intelligence in organizations. *International Journal of Information Management*, 60, 102379.
- Fu, H. P., Chang, T. H., Lin, S. W., Teng, Y. H., & Huang, Y. Z. (2023). Evaluation and adoption of artificial intelligence in the retail industry. *International Journal of Retail & Distribution Management*, 51(6), 773-790.
- Gupta, M., & George, J. F. (2016). Toward the development of a big data analytics capability. *Information & Management*, 53(8), 1049-1064.
- Jin, B. E., & Shin, D. C. (2020). Changing the game to compete: Innovations in the fashion retail industry from the disruptive business model. *Business Horizons*, 63(3), 301-311.
- Lee, H., & Choi, B. (2003). Knowledge management enablers, processes, and organizational performance: An integrative view and empirical examination. *Journal of Management Information Systems*, 20(1), 179-228.
- Mollá-Descals, A., Frasset-Deltoro, M., & Ruiz-Molina, M. E. (2011). Internationalization patterns in fashion retail distribution: implications for firm results. *The Service Industries Journal*, 31(12), 1979-1993.
- Nelson, R. R., Todd, P. A., & Wixom, B. H. (2005). Antecedents of information and system quality: An empirical examination within the context of data warehousing. *Journal of Management Information Systems*, 21, 199-235.
- Sullivan, Y., & Wamba, S. F. (2024). Artificial intelligence and adaptive response to market changes: A strategy to enhance firm performance and innovation. *Journal of Business Research*, 174, 114500.
- Swazan, I. S., & Youn, S. Y. (2023). Frontline resilience in the retail realm: the role of moral disengagement in understanding employee behavior in the post-pandemic uncertainties. *Future Business Journal*, 9(1), 84.
- Swazan, I. S., & Youn, S. Y. (2024). Blockchain in Luxury Resale: The Impact of Blockchain Technology Through Regulatory Focus and Uncertainty Reduction Theories. *Journal of Consumer Behaviour*.

- Tallon, P. P., & Pinsonneault, A. (2011). Competing perspectives on the link between strategic information technology alignment and organizational agility: Insights from a mediation model. *MIS Quarterly*, 35(2), 463–486.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.
- Zhou, K. Z., Gao, G. Y., Yang, Z., & Zhou, N. (2005). Developing strategic orientation in China: Antecedents and consequences of market and innovation orientations. *Journal of Business Research*, 58(8), 1049-1058.