

## **The evolution of marketing skills in the age of Generative AI: a longitudinal study**

### **Abstract**

The study presents the beginning of a longitudinal analysis of the evolving skill sets across various roles within the marketing function, with a specific focus on the transformative impact of generative artificial intelligence. The research spans a three-year period, aiming to capture the rapid transformations characterising the sector. The analysis focuses on the skills required for four key marketing roles, namely: Marketing Manager, Search Marketing Strategist, Market Research Analyst and Marketing Specialist, Advertising and Promotions Manager, utilising data from the O\*NET database. The research highlights the growing importance of both technological and cognitive skills across marketing roles. The findings present valuable academic and practical insights into the evolving demands of the marketing profession in the context of generative AI advancements.

**Keywords:** *competence, skill, generative artificial intelligence, marketing*

### **Introduction**

In recent years, the marketing function has undergone significant transformation, largely driven by advances in digital technologies and, more recently, the advent of artificial intelligence (AI) (Verma et al. 2021; Vlačić et al. 2021). Among the various types of AI, generative artificial intelligence (GAI) stands out due to its potential to revolutionize creative processes, content generation, and customer engagement strategies (Huang and Rust, 2021; Ameen et al. 2022; Chintalapati, and Pandey, 2022; Kshetri et al. 2023).

These changes have necessitated a re-evaluation of the skills required to successfully perform in marketing roles (Vlačić et al. 2021; Santana and Díaz-Fernández, 2023). Despite the growing body of research on AI's impact on various industries (Makridakis, 2017; Kaplan and Haenlein, 2020; Dwivedi et al. 2023), the current literature exploring the evolution of skills with the introduction of GAI, is in its infancy. While prior studies have examined the skills required for digital transformation and emerging technologies in general (Sousa and Wilks, 2018; Sousa & Rocha, 2019), they often overlook specific changes in the skills required of marketing professionals.

In this regard, this paper aims to investigate the evolution of skills within key marketing roles over a three-year period (2024, 2025, 2026) with a specific emphasis on the impact of GAI. The study seeks to address the following research question: *how are technological, cognitive and soft skills evolving in response to the introduction of GAI in the marketing sector?*

The study offers an initial understanding of the competencies required in the marketing function for 2024, with a focus on the impact of GAI tools. help marketing professionals navigate the rapidly evolving landscape shaped by GAI advancements.

## **Literature background**

Twenty-first-century competencies go beyond traditional digital skills, encompassing a range of cognitive and interpersonal capacities. Seven core competencies essential for the future of work include technical skills, information management, communication, collaboration, creativity, critical thinking, and problem-solving, complemented by contextual skills such as ethical awareness, cultural awareness, adaptability, self-direction, and lifelong learning (Van Laar et al., 2017).

In the UK labor market, big data professionals require cross-functional abilities, integrating technical, business, and system competencies (Murawski & Bick, 2017). SMEs must adapt to digitalization by developing critical skills such as network collaboration, leadership, critical thinking, agility, and entrepreneurship. Emerging technologies, including AI, nanotechnology, robotics, and the Internet of Things, are essential for future success (Sousa & Wilks, 2018; Sousa & Rocha, 2019).

AI integration into business operations can significantly enhance organizational performance, especially in B2B marketing (Mikalef et al., 2023). To thrive in AI-driven workplaces, employees must develop key skills in data analysis, digital competencies, complex cognitive abilities, decision-making, and continuous learning. While technical skills are crucial for leveraging AI, cognitive and social skills remain essential for human-machine collaboration (Jaiswal et al., 2022; Theben et al., 2023).

## **Methodology**

To address the research question, this study employs content analysis, a well-established research method for categorizing textual data and extracting meaningful insights (Mayring, 2021). The data used in this analysis pertains to the year 2024 and is sourced from the O\*NET database, a publicly accessible platform that provides detailed occupational information for various roles within the United States. O\*NET, regularly updated, serves as a key resource for estimating physical and psychosocial exposures in the workplace, as well as organizational characteristics. It utilizes a standardized taxonomy to describe and present valid and reliable data regarding occupations and workforce characteristics (Dye & Silver, 1999; Handel, 2016; Peterson et al. 2001).

The database was queried using the keyword "marketing," yielding 20 occupations, which were further refined to four roles closely aligned with the marketing function: Marketing Managers, Search Marketing Strategists, Market Research Analysts and Marketing Specialists, and Advertising and Promotions Managers.

In accordance with the research objective, the analysis focuses on "technology skills" and "skills" across these roles, following a structured four-phase process (Krippendorff, 2004). A coding framework, based on existing literature on skills in digital transformation and AI (Jaiswal et al., 2022), was developed, classifying skills into three categories: technological, cognitive, and soft. Manual coding ensured context-specific accuracy, and the framework's reliability was validated through consistency checks. Given the longitudinal design of this study, the same methodology is expected to be applied on an annual basis to track the evolution of skill requirements over time.

## **Preliminary findings**

The analysis of skills required for marketing roles in 2024 (see Fig. 1) reveals a strong emphasis on technological competencies, with data analysis skills, particularly through tools like Microsoft Excel and Google Analytics, emerging as fundamental across all roles. This aligns with broader trends in digital transformation, where data-driven decision-making is increasingly central (Mikalef et al., 2023). Alongside technological skills, advanced cognitive abilities such as critical thinking and complex problem-solving remain indispensable, enabling professionals to navigate the complex challenges posed by the rapidly evolving marketing landscape (Jaiswal et al. 2022). Soft skills, including communication and adaptability, are also vital, reflecting the need for marketers to operate effectively across diverse functions and adapt to continuous technological changes. These interpersonal skills complement technical and cognitive competencies, enabling professionals to thrive in dynamic, AI-driven environments (Van Laar et al. 2017).

Although GAI is not yet explicitly referenced among the key tools for marketing roles in 2024, its transformative impact across various sectors suggests that it may play a growing role in the field. The findings underscore the increasing prominence of technological skills while reinforcing the continued importance of cognitive and soft skills in an AI-influenced marketing landscape.

The paper aims to develop a framework that can guide marketing professionals in defining the future skills required in the marketing sector. This framework seeks to support the development of targeted training programmes, ensuring that marketing professionals are adequately prepared for the transformations brought about by the introduction of GAI.

## **Conclusions**

This longitudinal study provides an initial analysis into the evolving landscape of marketing skills in response to the rapid advancements in GAI. As highlighted in our preliminary findings, the prominence of technological skills, particularly in data analysis and digital tools, is set to continue growing. At the same time, cognitive abilities such as critical thinking and problem-solving, alongside essential soft skills like communication and adaptability, remain integral to marketing professionals' success.

The results of this study underscore the need for further research into the evolving intersection of technology and human capital in marketing. Future research should expand on the role of GAI in shaping the competencies of marketing professionals.

From a managerial perspective, the study has important implications for talent acquisition, training, and development. Organizations need to proactively adapt to these shifts by fostering a workforce equipped with a balanced combination of technological, cognitive, and interpersonal skills. Training programs should be designed to upskill marketing teams, not only in the use of AI-driven tools but also in maintaining the critical thinking and adaptability necessary to thrive in dynamic environment.

**Fig. 1** - Classification of skills for the year 2024

		MARKETING MANAGER	SEARCH MARKETING STRATEGISTS	MARKET RESEARCH ANALYSTS AND MARKETING SPECIALISTS	ADVERTISING AND PROMOTIONS MANAGERS
Aggregate dimensions	Sub-dimensions	Examples	Examples	Examples	Examples
<i>Technological skills</i>	Data analysis skills	Microsoft Excel, Google Analytics, Structured Query Language SQL, Tableau, R, Python, Salesforce software	Google Analytics, Microsoft Excel, Structured Query Language (SQL), Tableau, Microsoft Access	Microsoft Excel, Google Analytics, Structured Query Language (SQL), Tableau, Microsoft Access, Salesforce software	Microsoft Excel, Google Analytics, SAP software, Tableau, Salesforce software
	Digital skills	Microsoft Office software, Microsoft Outlook, Atlassian HIRA, HubSpot software, Hypertext Markup Language, Adobe Photoshop, Adobe Creative Cloud software, Marketo Marketing Automation, Atlassian Confluence, WordPress, TikTok, Microsoft Word, Amazon Web Services software, SAP software	Hypertext markup language HTML, Microsoft Office software, Cascading Style Sheets, Microsoft PowerPoint, JavaScript, WordPress, Microsoft Outlook, Microsoft Word, HubSpot software	Microsoft Office software, Microsoft PowerPoint, Adobe Photoshop, Microsoft Outlook, TikTok, Adobe Creative Cloud software, Adobe InDesign, Microsoft Word, Adobe Illustrator, Hypertext Markup Language (HTML), Canva, WordPress, Facebook, HubSpot software, Microsoft SharePoint, LinkedIn, Cascading Style Sheets (CSS), Marketo Marketing Automation	Microsoft Office software, Microsoft PowerPoint, Hypertext Markup Language (HTML), Adobe Photoshop, Microsoft Outlook, Adobe Creative Cloud software, Microsoft Word, WordPress, HubSpot software, Adobe Illustrator, Adobe InDesign, Marketo Marketing Automation, JavaScript, Facebook
<i>Cognitive skills</i>	Complex cognitive skills	Critical thinking, complex problem solving, systems evaluation, management of personnel resources, operations analysis, systems analysis	Complex problem solving, critical thinking, system analysis, systems evaluation	Critical thinking, complex problem solving, mathematics, systems analysis, systems evaluation	Critical thinking, complex problem solving, system analysis, systems evaluation, mathematics
	Decision making skills	Active learning, judgment and decision making	Active learning, judgment and decision making	Judgment and decision making, active learning	Judgment and decision making, active learning
	Continuous learning skills	Monitoring, learning strategies	Monitoring	Monitoring, learning strategies	Monitoring, learning strategies
<i>Soft skills</i>	Interpersonal skills	Reading comprehension, social perceptiveness, service orientation	Reading comprehension, service orientation, social perceptiveness	Reading comprehension, social perceptiveness	Social perceptiveness, reading comprehension, service orientation
	Communication skills	Writing, active listening, speaking, persuasion, negotiation	Active listening, speaking, writing, persuasion, negotiation	Active listening, speaking, writing, persuasion	Active listening, speaking, writing, persuasion, negotiation
	Leadership skills	Time management, coordination, instructing	Coordination, instructing, time management	Coordination, time management	Coordination, time management, management of personnel resources

## References

- Ameen, N., Sharma, G. D., Tarba, S., Rao, A., & Chopra, R. (2022). Toward advancing theory on creativity in marketing and artificial intelligence. *Psychology & Marketing*, 39(9), 1802-1825.
- Chintalapati, S., & Pandey, S. K. (2022). Artificial intelligence in marketing: A systematic literature review. *International Journal of Market Research*, 64(1), 38-68.
- Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., ... & Wright, R. (2023). Opinion Paper: "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71, 102642.
- Dye, D., & Silver, M. (1999). The origins of O\*NET.
- Handel, M. J. (2016). The O\*NET content model: strengths and limitations. *Journal for Labour Market Research*, 49(2), 157-176.
- Huang, M. H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science*, 49, 30-50.
- Jaiswal, A., Arun, C. J., & Varma, A. (2023). Rebooting employees: Upskilling for artificial intelligence in multinational corporations. In *Artificial Intelligence and International HRM* (pp. 114-143). Routledge.
- Kaplan, A., & Haenlein, M. (2020). Rulers of the world, unite! The challenges and opportunities of artificial intelligence. *Business Horizons*, 63(1), 37-50.
- Kshetri, N., Dwivedi, Y. K., Davenport, T. H., & Panteli, N. (2023). Generative artificial intelligence in marketing: Applications, opportunities, challenges, and research agenda. *International Journal of Information Management*, 102716.
- Makridakis, S. (2017). The forthcoming Artificial Intelligence (AI) revolution: Its impact on society and firms. *Futures*, 90, 46-60.
- Mayring, P. (2021). *Qualitative content analysis: A step-by-step guide*.
- Mikalef, P., Islam, N., Parida, V., Singh, H., & Altwaijry, N. (2023). Artificial intelligence (AI) competencies for organizational performance: A B2B marketing capabilities perspective. *Journal of Business Research*, 164, 113998.
- Murawski, M., & Bick, M. (2017). Demanded and imparted big data competences: towards an integrative analysis.
- Peterson, N. G., Mumford, M. D., Borman, W. C., Jeanneret, P. R., Fleishman, E. A., Levin, K. Y., ... & Dye, D. M. (2001). Understanding work using the Occupational Information Network (O\*NET): Implications for practice and research. *Personnel Psychology*, 54(2), 451-492.
- Santana, M., & Díaz-Fernández, M. (2023). Competencies for the artificial intelligence age: visualisation of the state of the art and future perspectives. *Review of Managerial Science*, 17(6), 1971-2004.
- Sousa, M. J., & Rocha, Á. (2019). Digital learning: Developing skills for digital transformation of organizations. *Future Generation Computer Systems*, 91, 327-334.

Sousa, M. J., & Wilks, D. (2018). Sustainable skills for the world of work in the digital age. *Systems Research and Behavioral Science*, 35(4), 399-405.

Theben, A., Plamenova, N., & Freire, A. (2023). The “new currency of the future”: a review of literature on the skills needs of the workforce in times of accelerated digitalisation. *Management Review Quarterly*, 1-32.

Van Laar, E., Van Deursen, A. J., Van Dijk, J. A., & De Haan, J. (2017). The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in Human Behavior*, 72, 577-588.

Verma, S., Sharma, R., Deb, S., & Maitra, D. (2021). Artificial intelligence in marketing: Systematic review and future research direction. *International Journal of Information Management Data Insights*, 1(1), 100002.

Vlačić, B., Corbo, L., e Silva, S. C., & Dabić, M. (2021). The evolving role of artificial intelligence in marketing: A review and research agenda. *Journal of Business Research*, 128, 187-203.