



# Harness the power of artificial intelligence to generate graphical abstracts

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In the rapidly evolving digital age, the way information is presented and disseminated has changed dramatically. There is an increasing preference for concise and intuitive content, as witnessed on platforms such as Facebook, Instagram, or TikTok, that has extended to the academic realm. This shift is particularly evident in high-impact research journals, where an ever-growing number of them now require authors to submit graphical abstracts (GAs).<sup>1</sup> The *Journal of the Chinese Medical Association* has also encouraged authors to include a GA with their articles and commemorated the first GA-embedded paper in October 2024.<sup>2</sup>

GAs serve as an important bridge between text-based abstracts and the full text of a traditional paper. They are graphical representations of the key findings of a study, accompanied by minimal explanatory text. Although not always present in full-text portable document formats or print versions, GAs can help readers quickly assess the relevance of a paper before deciding to delve deeper. This not only streamlines the research reading process, but also reflects the future of scientific publishing, where the ability to combine scholarly writing with engaging presentation is becoming the norm.<sup>3</sup>

The benefits of GAs are manifold. First, they provide a visual summary of a paper's purpose and contributions, allowing readers to grasp the main ideas much more quickly than through text alone. This visual advantage is particularly useful for highlighting aspects that are difficult to convey concisely in a text-based abstract. Studies have shown that papers with GAs tend to have about twice the readership and media coverage of those without.<sup>4</sup> Creating an effective GA involves several key elements. The choice of images depends on the author's judgment of what will pique readers' interest, whether it's showing novel research methods, experimental procedures, or significant findings. Although there are no strict rules regarding the content of GAs, many journals

expect them to include an overview of the research question, methodology, results, citation information (if applicable), and details of the GA author.<sup>5</sup>

Based on personal experience, we have developed two sets of guidelines for crafting impactful GAs. The first set emphasizes adherence to journal-specific formatting requirements and close attention to the layout and style preferences of previously published GAs in the target journal. It's advisable to limit the number of fonts to three and color palettes to five to maintain a clean and focused design.<sup>6</sup> In addition, soliciting feedback from team members before finalizing the GA may increase its chances of acceptance. The second set of guidelines follows a three-step approach: "Quick," which involves quickly identifying relevant materials and text once the topic of the paper has been established; "Visual Composition," which distills and emphasizes the key elements of the research while minimizing distractions; and "Perfect Presentation," which ensures that key results are accurately presented and prominently placed on the layout (Fig. 1).

In the age of artificial intelligence (AI), we have powerful tools to enhance the GA creation process. Tools such as Recraft AI can generate images or illustrations from text prompts in <10 seconds, with features such as vector graphics creation and background removal. The images are also royalty-free and can be used commercially. For those interested, we have created a 3-minute tutorial on YouTube that demonstrates how to use the updated version of Recraft AI for GA creation.<sup>7</sup>

There are also online drawing and collaboration software options, such as Mind the Graph (<https://mindthegraph.com/>) and BioRender (<https://www.biorender.com/>). These platforms offer free trials and, with payment, access to a wide range of templates and features. Their cloud storage functionality allows users to edit files anytime, anywhere with an Internet connection. We have also created a 16-minute beginner's guide to help researchers get started with these tools.<sup>8</sup>

In conclusion, GAs are an essential component of modern scientific publishing. By leveraging AI and digital tools, researchers can create visually appealing and informative GAs that effectively communicate findings. Hopefully, these insights will be valuable to the academic community, and we will see more innovative and impactful GAs in future publications.

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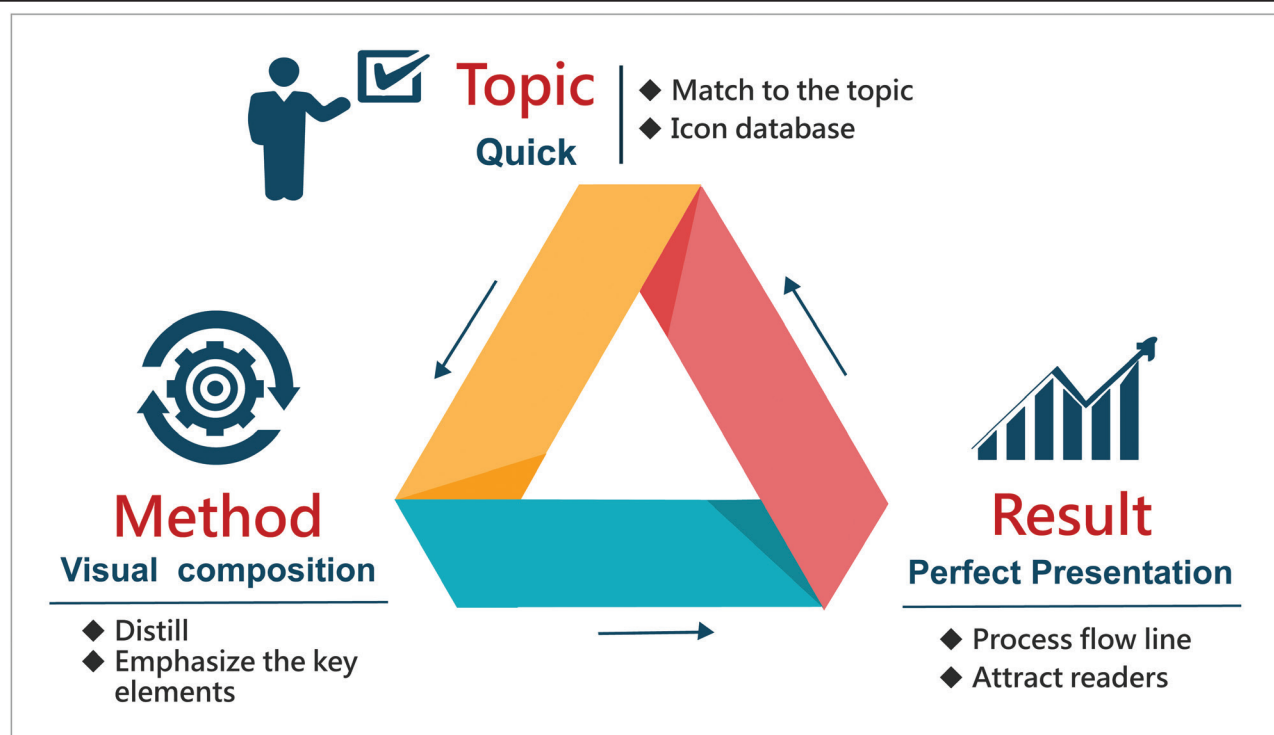
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**Fig. 1** Concept of creating a graphical abstract.

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