

## » Forschung in Wildau – innovativ und praxisnah «

# Exploring AI in Technology Scouting: Experimental Insights on Content Accuracy and Efficiency

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## The Challenge of Keeping Up with Innovation

Technology scouting and knowledge transfer play a critical role in identifying and evaluating emerging technologies [1]. However, traditional methods struggle with the increasing speed of technological advancements, making it difficult to efficiently track and communicate new developments [2].

This study examines how AI-based text generation, particularly through ChatGPT 4, can enhance the efficiency and quality of content creation for technology scouting. The research focuses on Inno Radar, a web-based platform designed to facilitate open and collaborative technology scouting [3].

## AI as a Game-Changer for Technology Scouting

To assess the potential of AI-assisted content generation, an existing Technology Radar 2023 was updated for 2024 using ChatGPT-generated texts. The study analyzed the AI's ability to produce relevant and structured content, evaluated the accuracy of generated references, and tested the seamless integration of AI-generated Markdown content into Inno Radar [4].

A structured prompt-engineering approach was employed to optimize outputs, ensuring high-quality and informative content. The evaluation focused on text coherence, factual accuracy, and the AI's capability to generate reliable technology assessments.

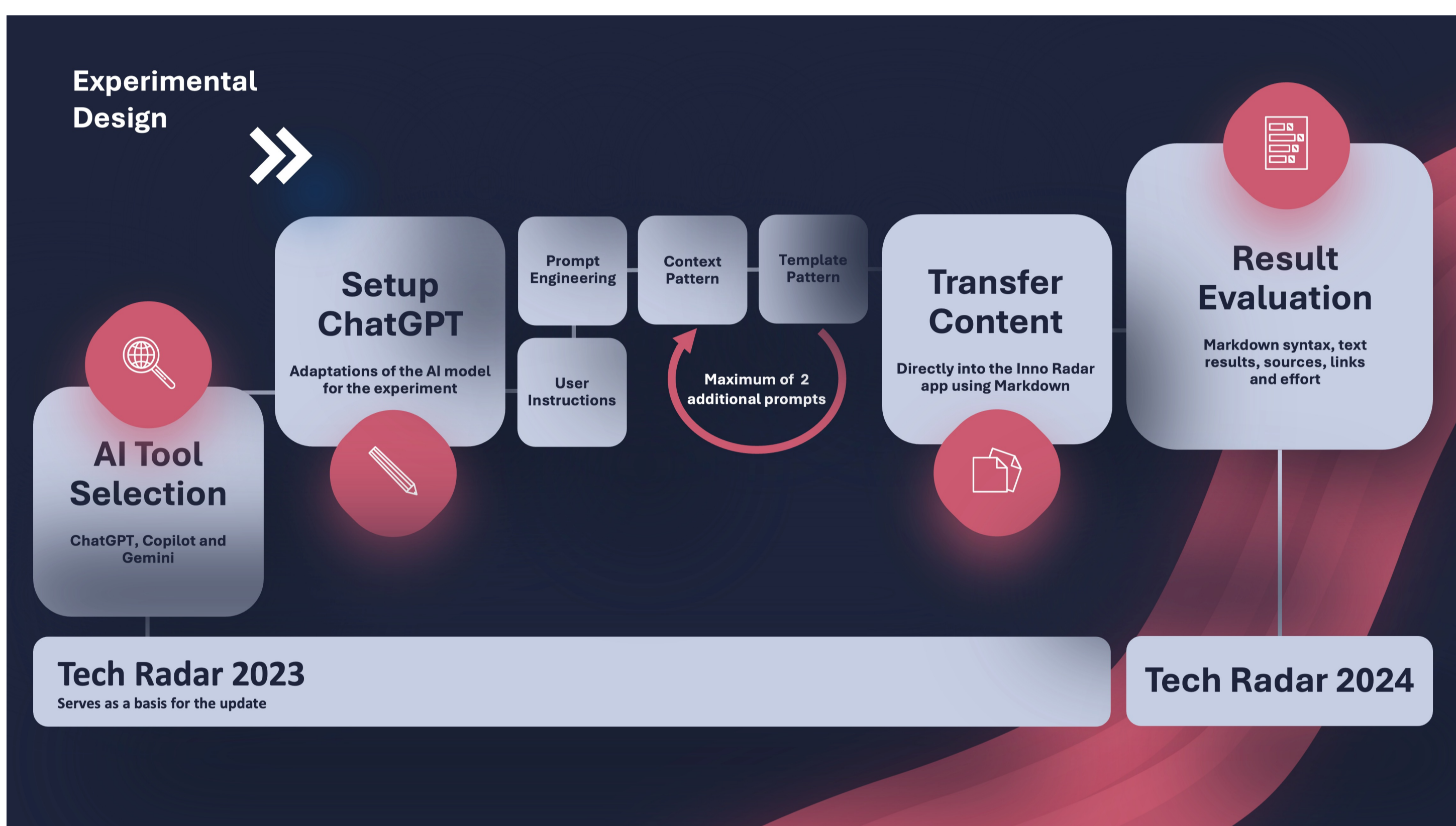


Figure 1: Methodology

## The Art of Prompt-Engineering

One of the key factors influencing the success of AI-generated content is the quality of the input prompts [5]. In this study, a structured prompt-engineering approach was applied to refine ChatGPT's responses and optimize its outputs for technology scouting. Prompt engineering involves crafting specific, detailed instructions that guide AI towards producing high-quality, relevant, and structured content.

During the experiment, an initial challenge was AI's tendency to generate overly generic or biased responses. To counter this, a template-based prompt structure was used, ensuring consistency in formatting and factual accuracy. Additionally, the Context Control Pattern was applied, where AI was provided with explicit examples and constraints to refine its results [6]. By systematically adjusting the prompts, the accuracy of generated content improved significantly, reducing the need for manual corrections.

## Breaking Down the Results: What Worked and What Didn't

AI-based text generation significantly reduced the time and effort required for updating the radar. The generated content was generally well-structured, informative, and required minimal modifications. Markdown-formatted AI-generated texts integrated seamlessly into Inno Radar, allowing for an efficient and automated workflow.

One challenge identified was the reliability of AI-generated references. While the majority of the content was accurate, 23% of the external references produced by ChatGPT were found to be invalid or non-existent, requiring manual correction. Additionally, AI initially exhibited a tendency to favor specific industries in its examples, necessitating adjustments to ensure greater diversity in technology scouting applications. Despite these limitations, the integration of AI-generated content streamlined the process and improved accessibility to relevant technological insights.



Figure 2: The Result – Tech Radar 2024

## The Pitfalls of AI: What Needs to Be Fixed

Although AI offers clear advantages in content generation, several challenges remain. One major issue is the occurrence of AI hallucinations, where the model generates fictitious or misleading references. This raises concerns about the reliability and trustworthiness of AI-generated knowledge. Furthermore, AI-generated content lacks transparency in sourcing, making it difficult to verify the credibility of information without manual validation.

Another critical limitation is data privacy. The use of external AI tools for knowledge transfer may pose risks regarding the confidentiality of proprietary or sensitive information. While AI can accelerate content generation, organizations must implement strategies to ensure secure data handling and prevent unintended disclosure of sensitive research insights.

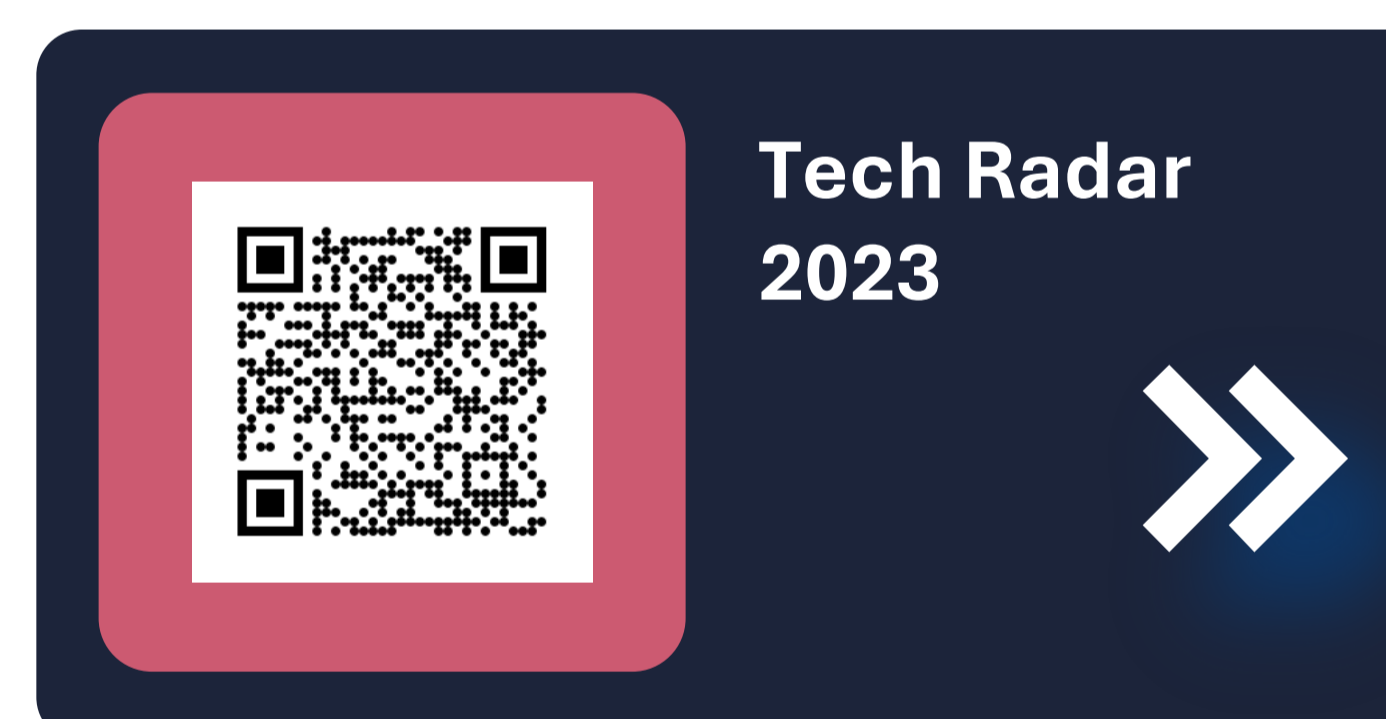


Figure 3: The Basis of the Experiment

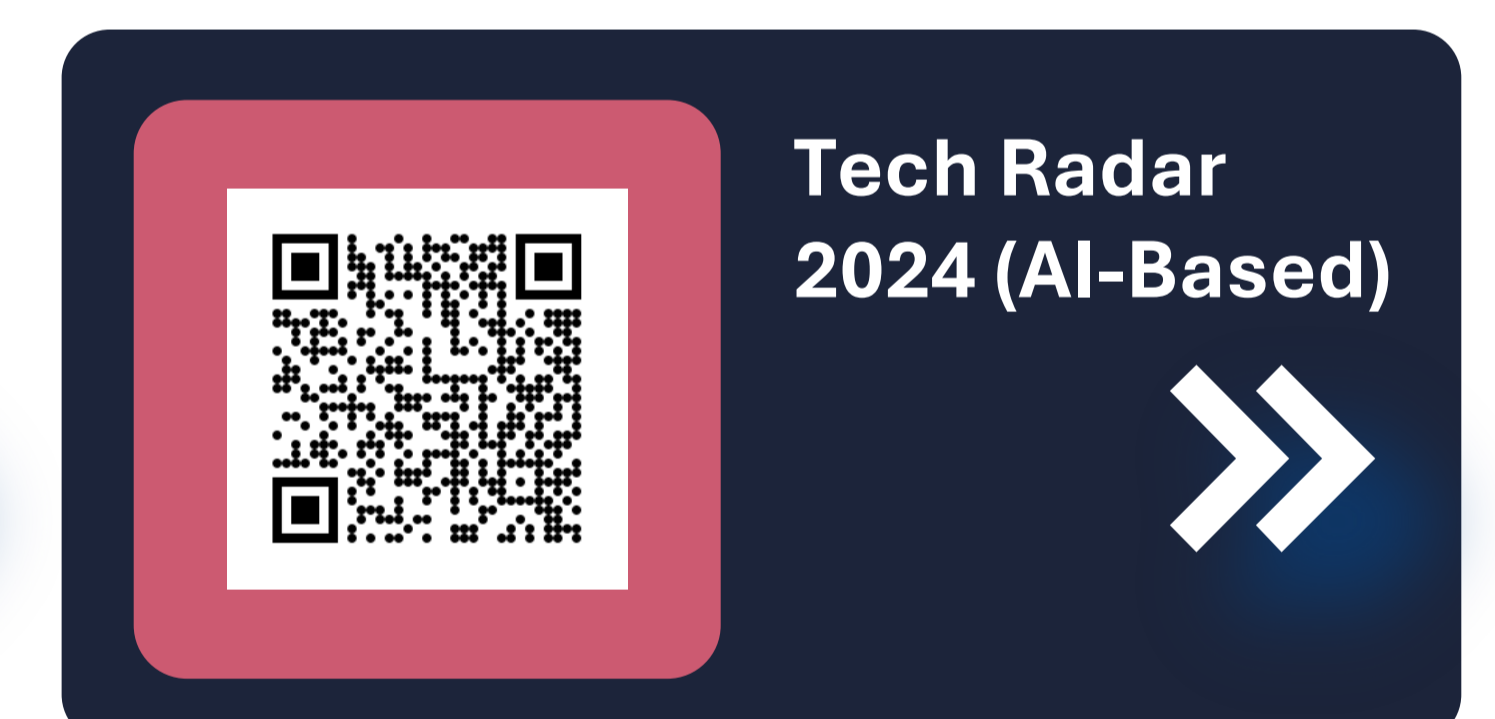


Figure 4: The New Radar generated with AI-Content

## Shaping the Future of AI-Driven Technology Scouting

AI-driven content generation has the potential to support technology scouting, making it faster, more accessible, and more efficient. However, human oversight remains essential to ensure accuracy, reliability, and diversity in the generated content. Moving forward, efforts should focus on improving AI citation accuracy, reducing biases in content generation, and integrating AI functionalities directly into scouting platforms like Inno Radar.

One limitation of this study is that the research and experiment were conducted in March 2024, meaning that newer AI models were not included in the experiment. AI technologies are evolving rapidly, and newer models such as the latest ChatGPT versions or DeepSeek could yield different results in terms of content quality, factual accuracy, and citation reliability. A follow-up study using these updated models would provide valuable insights into whether recent advancements in AI reduce errors and improve automation in technology scouting.

Additionally, establishing ethical guidelines for AI in knowledge transfer will be key to maximizing its benefits while addressing its risks. By refining AI capabilities and implementing robust quality control measures, technology scouting can become a more reliable, efficient, and data-driven process. With continuous improvements and the incorporation of state-of-the-art AI models, AI-assisted scouting can further shape the future of innovation management and knowledge transfer, bridging the gap between technological discovery and real-world application.

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