November 7, 2024
Dexerials Corporation
Mitsubishi Research Institute, Inc.

Commence Construction of Visualization System for Technology Development Field Based on Generative AI: -Fast Promising Elemental Technology Search for Product and Technology Development in New Fields-

Dexerials Corporation (Headquarters: Shimotsuke-shi, Tochigi, Representative Director and President: Yoshihisa Shinya, hereinafter "Dexerials") and Mitsubishi Research Institute, Inc. (Head Office: Chiyoda-ku, Tokyo, President and Representative Director: Kenji Yabuta, hereinafter "MRI") announced the commencement of an automated visualization system for technological fields based on generative artificial intelligence (AI) that enables users to search for new businesses quickly and develop prospective products before others.





At Dexerials, the staff in charge of the project have closely read a vast amount of technical documents and papers and researchers have searched for applications for existing technologies in other fields and carefully developed new materials and devices. However, because of the complicated relationships between elemental technologies, even within a single research and development field, there are significant barriers to the discovery of promising elemental technologies. For example, in many cases there is insufficient knowledge and data in new R&D fields. It takes a lot of time for the staff in charge of these projects to get a deeper understanding of their work. Additionally, there are other issues, such as the sharing of knowledge and expertise and the differences between the abilities of different staff members.

To solve these issues, Dexerials and MRI have been creating a proof of concept (PoC) using artificial intelligence (AI) since 2022. As a result, some potential reforms were identified. Specifically, AI facilitates the selection, analysis and mapping of technical data in targeted business fields and the quick preparation of necessary materials. Based on this achievement, Dexerials and MRI will construct an automated visualization system for technological fields and increase the work efficiency of departments searching for new businesses, transforming knowledge and expertise into organizational knowledge. In the future, Dexerials and MRI will accelerate the verification of this PoC to promptly implement operations in diverse areas using generative AI at R&D sites.

Dexerials will continue to verify methods of using generative AI in practical tasks and search for new ideas with potential. In addition, Dexerials will provide high value-added products, technologies, and solutions, which are essential for the evolution of digital technologies that help solve social issues, as part of its efforts to contribute to building a sustainable society, achieve sustainable growth, and continue to enhance its corporate value.
MRI plans to apply the insights it gained on technical-document analysis to develop new products and technologies for clients. The firm will first focus on fortifying its LaLaSapo suite of AI solutions and related consulting services.

* LaLaSapo: comprehensive service supporting the safe and rapid introduction of ChatGPT technology(JP)

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1. Results of the PoC (points of reform)
• Provision of a quick overview of technological fields and elemental technologies
— Analysis of an enormous amount of technical documents and papers for identifying elemental technologies and analyzing their advantages and disadvantages ((1) in the diagram below)
Visualization of relationships between elemental technologies, etc. ((2) in the diagram below)
• Understanding promising elemental technologies quickly
— Automated analysis and clarification of characteristics, issues, and future prospects of elemental technologies based on many papers ((3) in the diagram below)
• Transforming knowledge and expertise into organizational knowledge
— Storage of the examination steps to apply the same processes when re-investigating matters in the same field and searching in other fields
— Accumulation and sharing of research expertise held individually by people as something that belongs to the organization

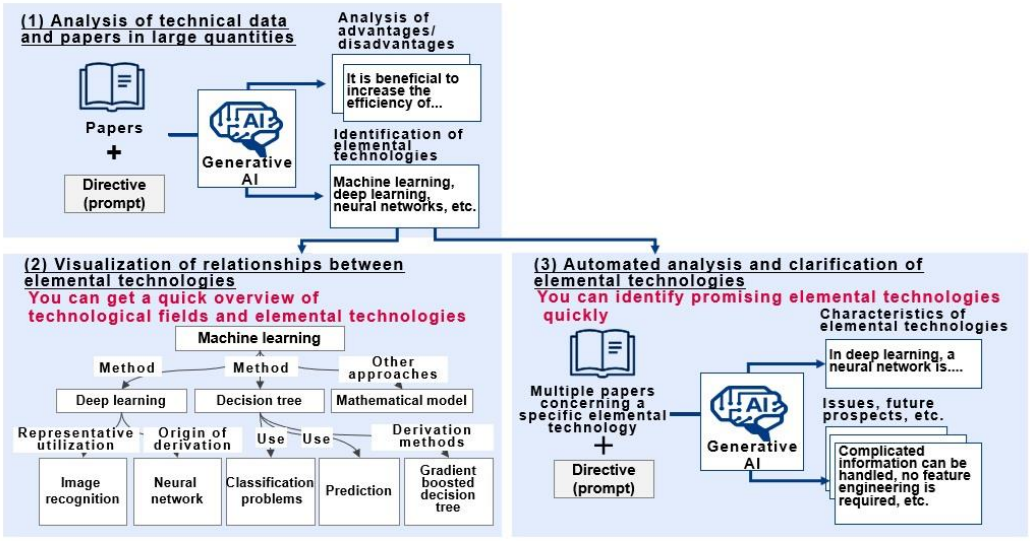


Diagram of how an automated visualization system will function in technological fields

2. Corporate profile

Dexerials Corporation
Dexerials develops, manufactures and distributes electronic components, bonding materials, optical materials and other functional materials that are indispensable in smartphones, laptops and other electronic devices, as well as in automobiles, which are increasingly becoming electronic. As a starting point for fostering growth and achieving a sustainable society, Dexerials established its new five-year Mid-term Management Plan in May 2024, under its Purpose, “Empower Evolution. Connect People and Technology,” as explained in the relevant section of its website (Corporate Philosophy, Vision and Purpose | About Dexerials | Dexerials)
Company name: Dexerials Corporation
Head office: 1724 Shimotsuboyama, Shimotsuke-shi, Tochigi, Japan
Representative: Yoshihisa Shinya, Representative Director and President
Established: June 20, 2012
Official website: https://www.dexerials.jp/en/
Mid-term management plan: https://www.dexerials.jp/en/ir/management/plan.html

Mitsubishi Research Institute, Inc.
Mitsubishi Research Institute, Inc. is a Japanese think tank that has been helping solve societal issues since 1970. For over half a century, it has provided the public and private sectors with research and consulting services in fields spanning energy, the environment, healthcare, human resources, and digital transformation. In the AI and data analytics fields, the firm provides a comprehensive set of services spanning big-data-driven policy planning, AI model development, and implementation of solutions. For generative AI in particular, Mitsubishi Research Institute has developed its LaLaSapo (Large Language model Support) suite of AI-based services and technologies by rehauling its own work processes and collaborating with business partners. Mitsubishi Research Institute will continue to use AI to revolutionize the knowledge-work and customer-interaction fields.
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Representative: Kenji Yabuta, President and Representative Director
Established: May 8, 1970
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