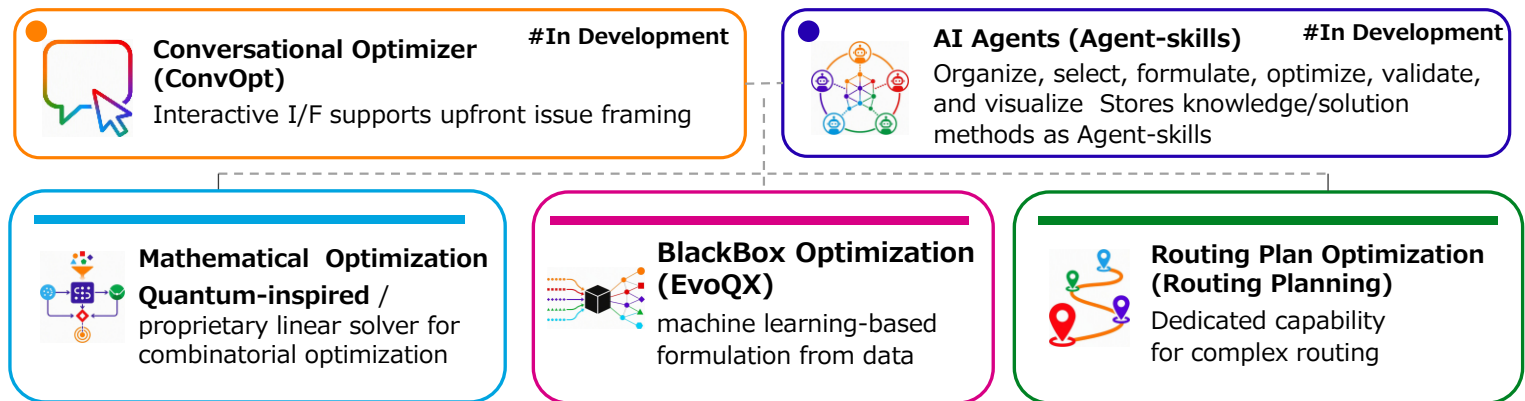


Fujitsu Digital Annealer resolves complex challenges with optimization solutions, guiding decision-making to the best choice

In today's rapidly changing environment, organizations must make timely decisions based on growing volumes of data and increasingly complex risks. The importance of optimization—turning data visualization and predictive insights into executable plans—continues to grow. At the same time, deriving the best solution from vast datasets and complex requirements within limited time requires selecting the right mathematical models and optimization techniques.

Fujitsu Digital Annealer

Fujitsu Digital Annealer centers on an annealing engine powered by proprietary quantum-inspired technology. It combines EvoQX for black-box optimization, Routing Planning for delivery planning, and ConvOpt for generative AI-based automatic formulation to support advanced decision-making. As a software package, it can be deployed quickly in customer environments.

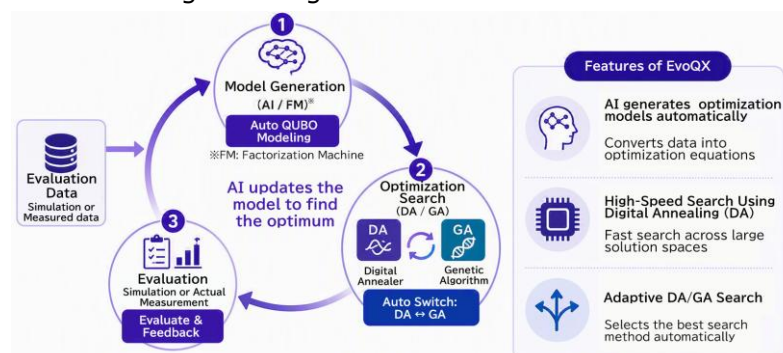


Quantum-Inspired (Fifth Generation) #In Development

In the fourth generation, linear and higher-order terms had to be converted into binary quadratic form, requiring specialized expertise for real-world operation. The latest fifth generation features an extended Ising solver that directly handles higher-order terms and a proprietary linear solver, enabling large-scale problems to be solved faster and more efficiently than with the fourth generation.

Black-Box Optimization

AI models and Digital Annealer derive optimal solutions for tacit knowledge in design tasks.



Delivery Plan Optimization

Provides a customized delivery plan optimization engine that incorporates customer-specific requirements.



Fujitsu Digital Annealer Use Cases



Vehicle Production Sequencing – Manufacturer A -

- ✓ Production-floor expertise built over many years and Fujitsu Laboratories' formulation technology express complex real-world constraints as equations and inequalities. Using proprietary constraint-handling technology implemented from the third generation of Digital Annealer onward, the system solves them efficiently at high speed.
- ✓ A new vehicle production instruction system powered by Digital Annealer has begun operating at a domestic plant, with plans to expand to other plants in Japan and overseas.



Optimizing Delivery Routes via Last-Mile Delivery DX

- Retail Company B -

- ✓ Began operations at 80 distribution centers nationwide to address last-mile challenges
- ✓ Optimized delivery routes reduce drivers' working hours
- ✓ CO₂ emissions reduction and other benefits help lower environmental impact



Streamlining In-Vehicle ECU Design - Manufacturer C -

- ✓ Rapidly finds the optimal ECU connector-pin layout from an enormous search space (9.3×10^{157} combinations for 100 pins)
- ✓ Encodes expert engineers' know-how in an AI model and uses DA for high-speed computation—over 20× faster than conventional methods



Digital Annealer for Quantum Platform

- Basque Government, Spain -

- ✓ Led by Fsas Technologies Spain in collaboration with Telefónica and Lantik. Implemented under the Bizkaia Quantum Advanced Industries (BIQAIN) public strategy promoted by the Provincial Council of Bizkaia.
- ✓ Provides an environment where companies, research institutions, and public agencies can experiment with and validate quantum and quantum-inspired technologies.

Related Link

[AI Technologies and Solutions](#)

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