

# Mathematical Engineering for Complex Social Systems in Future

Social Cooperation Programs, Institute of Industrial Science

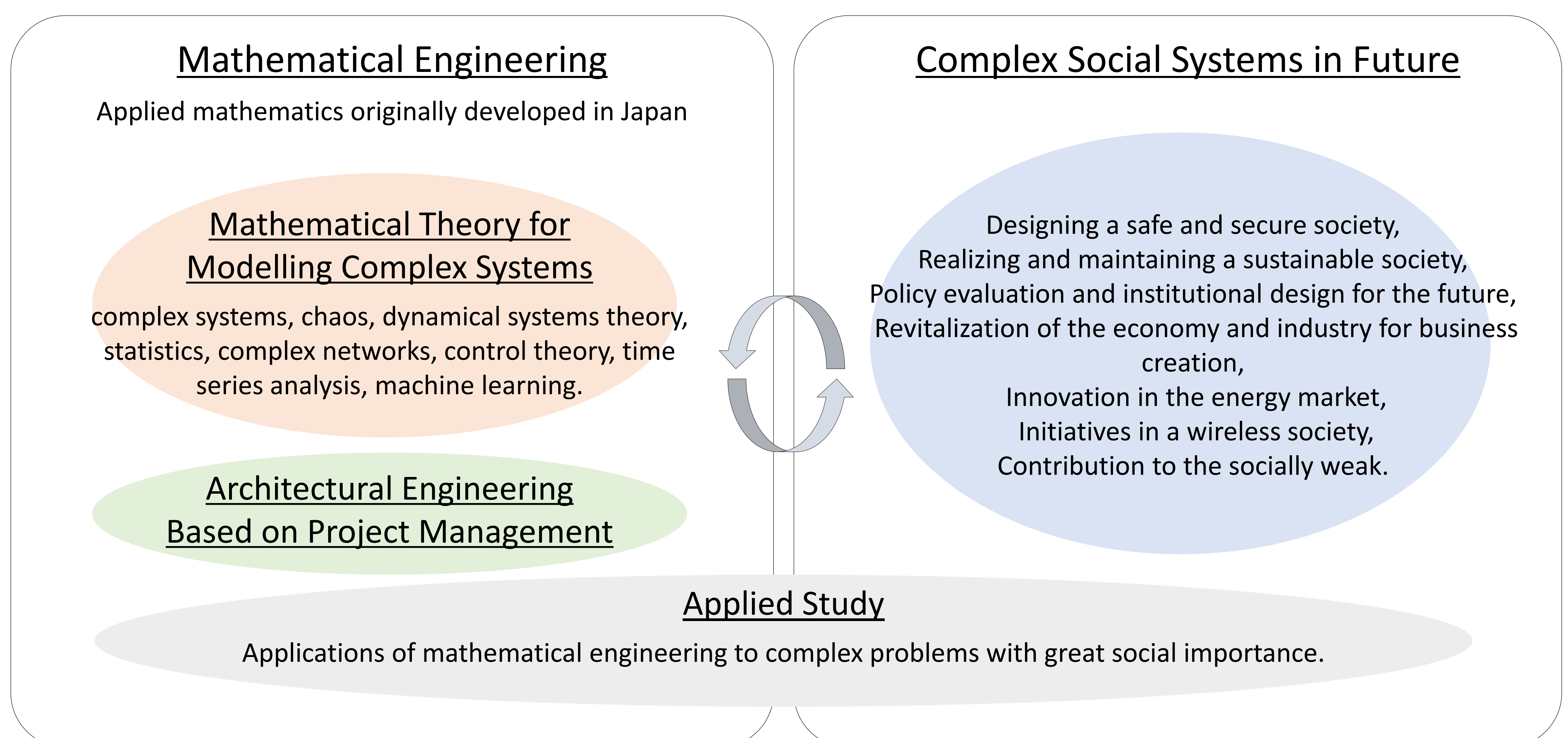
Mathematical Theory for Modelling Complex Systems  
Architectural Engineering Based on Project Management

## Mathematical Engineering for Complex Social Problems

The Social Cooperation Program “Mathematical Engineering for Complex Social Systems in Future” was established in Feb. 2016 in cooperation between the Institute of Industrial Science and Kozo Keikaku Engineering Inc. We study basic research of mathematical engineering for complex social systems in the future based on mathematical theory for modelling complex systems and architectural engineering based on project management. We also focus on the applications of the mathematical engineering to complex problems with great social importance with a view to the medium to long-term agendas such as “Designing a safe and secure society”, “Realizing and maintaining a sustainable society”, “Policy evaluation and institutional design for the future”, “Revitalization of the economy and industry for business creation”, “Innovation in the energy market”, “Initiatives in a wireless society”, and “Contribution to the socially weak”. Furthermore, we conduct educational research of mathematical engineering that can serve as a bridge between the academic world and the society, and aim at the development, dissemination, globalization, and interdisciplinarization of useful science and technology for society based on mathematical engineering. (Participating Labs: Aihara Lab and Yashiro Lab)

### Research topics

- Nonlinear time series analysis and its application to flood prediction
- Bayesian statistical modeling of point process and its application to financial and seismic data
- Mathematical modeling and simulation of epidemic process



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