

UNIVERSITY OF OULU

Self-improving Generative AI Model for Secure, Privacy-focused Medical Software

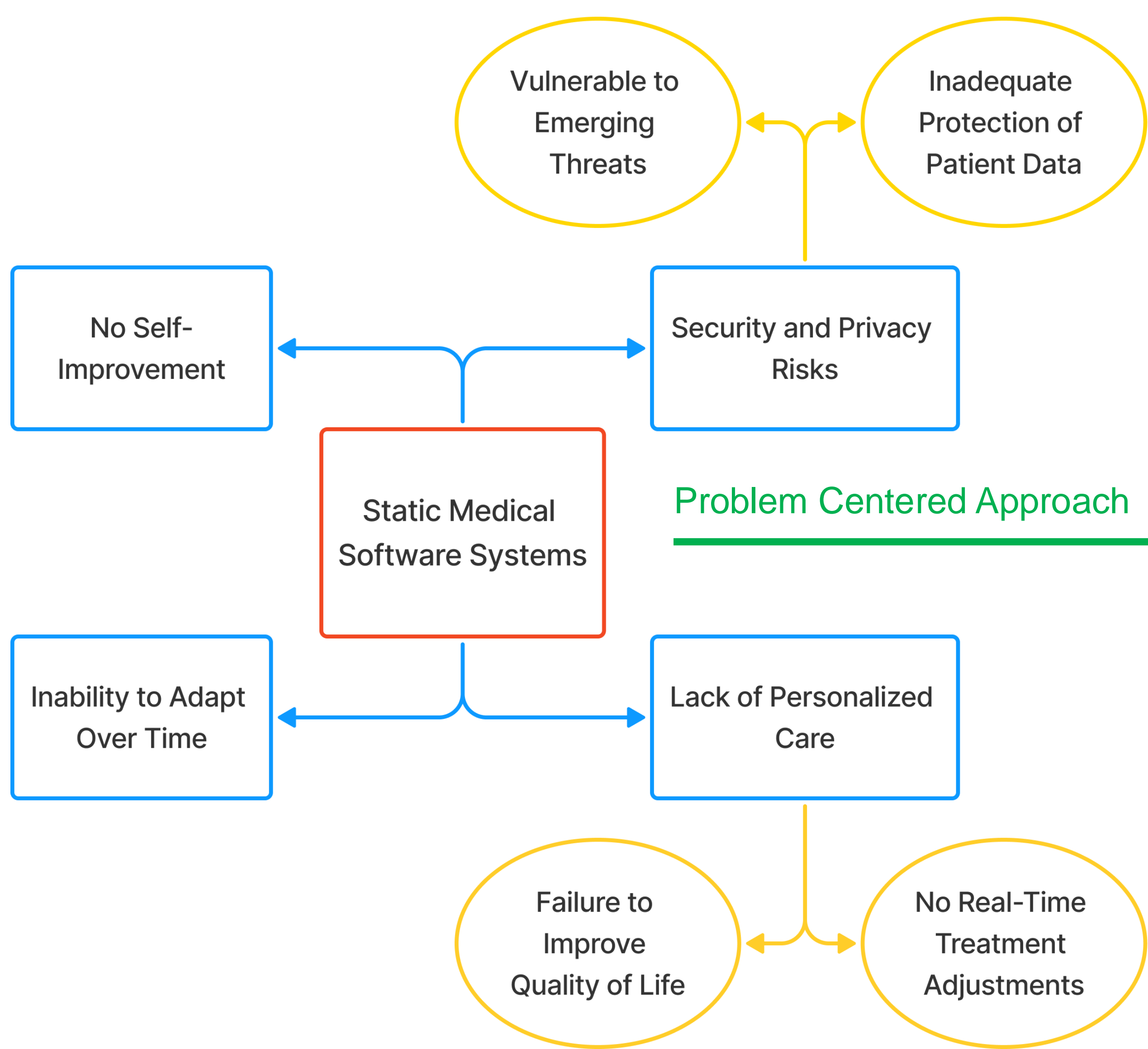
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Medical Software, Medical AI, Brain Health, Software Engineering

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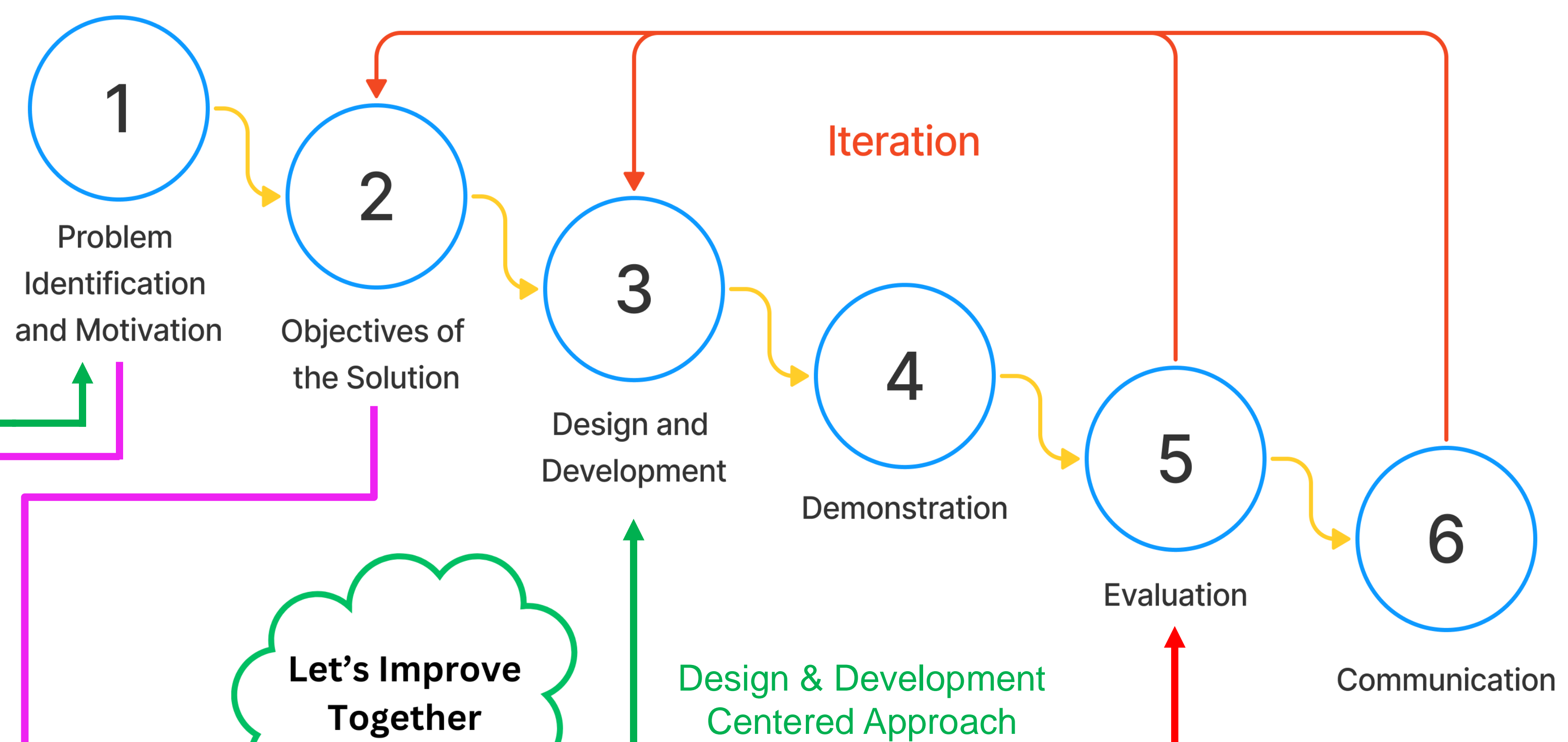
? Problem Statement

Current static medical software lacks the ability to autonomously improve security, and privacy, and track the treatment effectiveness over time. This results in vulnerabilities to emerging threats and suboptimal patient care, ultimately compromising the quality of life for patients

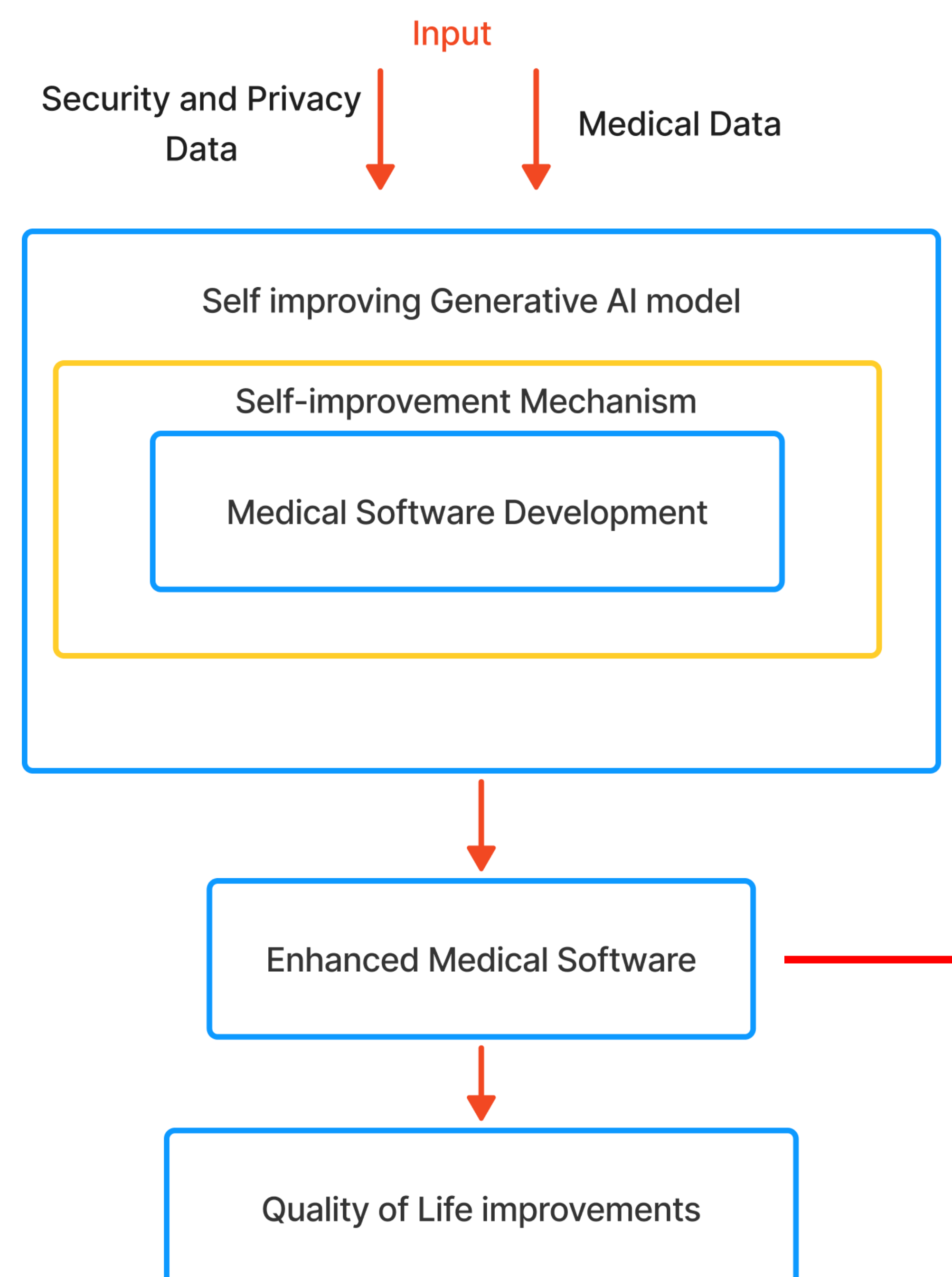


∞ Methodology

Design Science Research method's Relevance Cycle, Rigor Cycle and Design cycle will be employed in this research project [3].



Development Process [1]



🔍 Research Questions

- RQ 1** How can medical software be designed and optimized to enhance the quality of life for patients, considering their unique medical and privacy needs?
- RQ 2** How can a generative AI model be developed to continuously improve the functionality, security, and privacy of medical software?
- RQ 3** What guidelines can be established for integrating self-improving generative AI models into medical software to ensure enhanced security and privacy in compliance with healthcare regulations?

👉 Contributions

1. Medical Software to Enhance the Quality of Life of the Patients.
2. Generative AI model for software to enable the self-improving characteristic
3. Set of guidelines on how to use the model to improve the security and privacy of a software system

📖 References

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2. Zeigler, B. P. (2018). Discrete event system specification framework for self-improving healthcare service systems. *IEEE Systems Journal*, 12*(1), 196-207. <https://doi.org/10.1109/JSYST.2016.2514414>
3. Hevner, A R. (2007, January 1). A Three Cycle View of Design Science Research. , 19(2). <http://community.mis.temple.edu/seminars/files/2009/10/Hevner-SJIS.pdf>

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