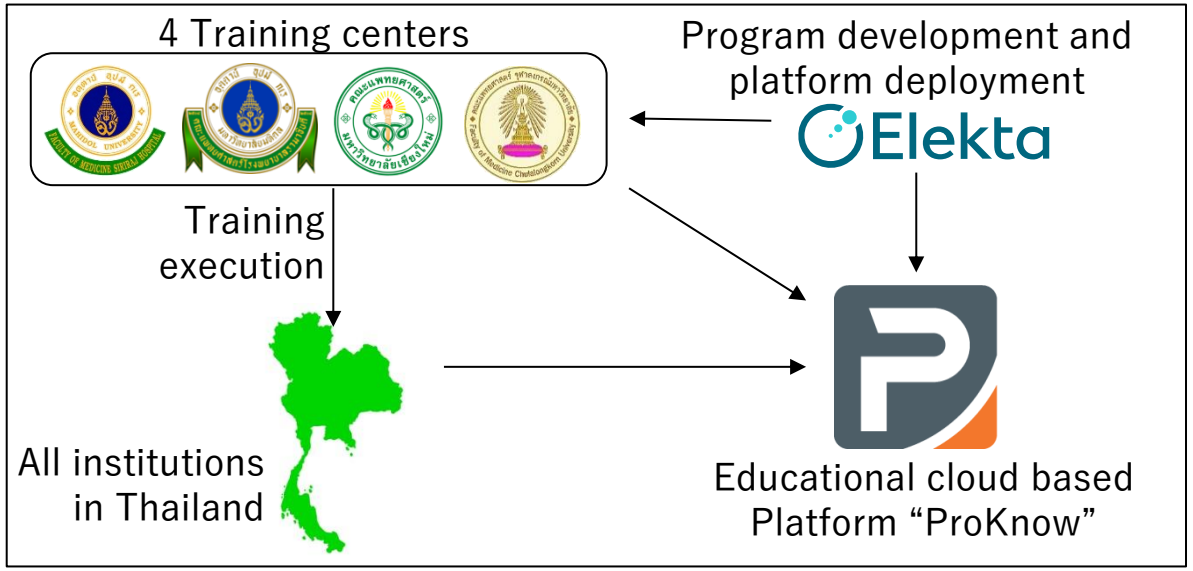
Elekta K.K.

Project SPECTRA (Sustainability Practice for Enhancing Cancer Therapy) aims to digitalize existing training interactions through digitalization that are typically done face-to-face to improve treatment planning quality to be an acceptable level

Objective of the project

This project intends to deploy a cloud-based educational platform across Thailand, in collaboration with radiation oncologists from Asian countries, to improve radiation therapy outcomes. Focusing on high-incidence cancers such as lung, breast, cervical, and liver cancer, we measured treatment effectiveness by improvements in treatment planning through the platform. The initiative aims to create a sustainable healthcare environment and drive long-term advancements in radiation therapy to improve regional treatment outcomes.

Cooperation with local companies/governments



Targeted economic/social issues

1. Background

Radiation therapy is a treatment method aimed at delivering precise doses to tumors while minimizing damage to healthy tissue, with the quality of treatment planning playing a crucial role in its success. However, creating these planning requires advanced expertise and technology, and variations can occur depending on practitioners. In ASEAN countries, the introduction of new radiation therapy equipment is accelerating, and over 80% of the machines introduced in Thailand in the last three years are newly-launched ones, indicating the urgent need for standardization of treatment planning.

2. Purpose and summary of the radiation therapy field

Radiation therapy is widely used in cancer treatment, particularly high-precision techniques which improve treatment outcomes and contribute to improving patients' quality of life. With recent advances in treatment, there is a global demand for improved radiation therapy technologies. However, in Thailand, there is still a shortage of expertise and technology, leading to disparities in treatment quality. The adoption rate of IMRT (Intensity Modulated Radiation Therapy) in Thailand is around 40%, indicating room for improvement. In areas with underdeveloped medical infrastructure, the introduction of radiation therapy technologies is lagging, and addressing these challenges is urgent. As cancer cases increase in Thailand, the need for advanced treatment methods is growing, and cloud-based online education and training offer an effective way to spread expertise beyond physical constraints.

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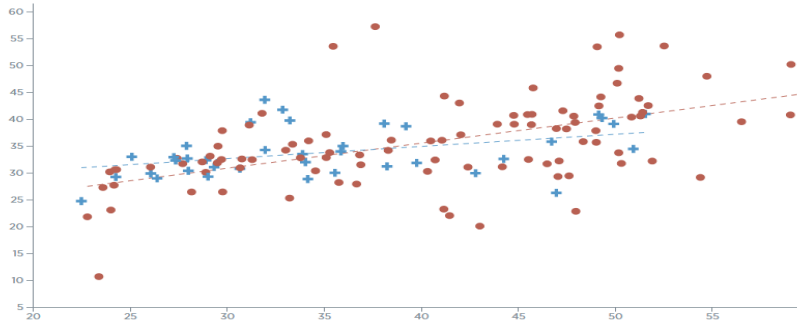
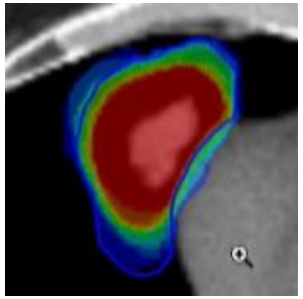
Demonstration period

Aug. 2023 – Dec. 2024

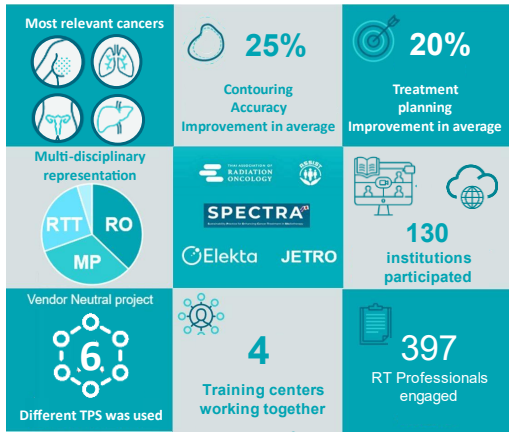
Details of demonstration

Four workshops were conducted, with formats depending on the treatment type: fully online (for liver and breast cancers) or in a hybrid format (for lung and cervical cancers). The workshops included lectures by radiation therapy experts, followed by online practical demonstrations. Results were analyzed using the ProKnow analysis tool, and experts provided guidance on variations in scores, improvement points, and trends. By displaying score variations (lower left) and differences in contouring accuracy by radiation oncologist (lower right), the areas for improvement were clearly identified.





Project outcome/future plans



The result of the project demonstrates significant project outcome, shown in the right diagram. In Thailand, 397 radiation therapy professionals have registered, and the sessions led to a 20% improvement in medical physicists' skills and a 25% improvement for radiation oncologists. This demonstrates that the project has not only contributed to solving social issues related to cancer treatment, but also accelerated business development, generating short-term business impact, including multiple-year contracts and budget inquiries. However, current challenges in digital transformation (DX) technology include the adoption of cloud technology, data privacy concerns, infrastructure development, and the shortage of skilled personnel in various countries. Moving forward, cooperation with health ministries and academic societies in each country is essential. Efforts will be made to promote government-backed infrastructure support, tax reductions, and grants, while expanding the use of ProKnow and offering value-added services to improve regional healthcare across ASEAN countries.