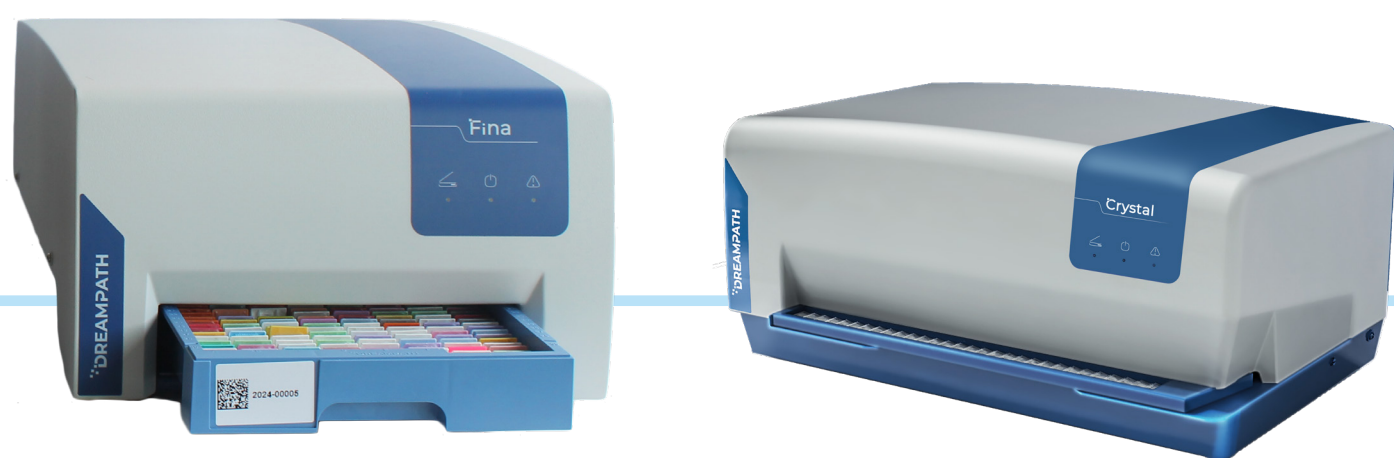


Advancing archival and precision retrieval in a pathology lab while securing tissue samples.

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1. Background

Donostia's University Hospital is one of the main hospitals in Osakidetza, the Basque Country health system, and its histology lab processes **350,000 slides and 230,000 blocks annually**.

Manual archiving was labour-intensive with high sample loss risk. The Pathology Department sought automation to improve traceability, reduce labour, and streamline sample management.

2. Methods

The Pathology Department conducted an observational study on 08.05.2024 with the implementation of two systems:

- **System 1:** Automated sorting, archiving, and retrieval of tissue blocks.
- **Systems 2 & 3:** Automated sorting, archiving, and retrieval of tissue slides.

With these systems laboratory technicians don't need to sort samples sequentially. For retrieval, the systems quickly direct lab staff to the precise location of a sample and provides detailed information about its chain-of-custody.



Fina and Crystal systems and cabinets in use at Donostia's University Hospital.

3. Results

Donostia's adoption of the new systems decreased staff-needed hours. **From 120 hours per month to archive and retrieve blocks in April 2024, to 60 hours in January 2025 (a decrease of 50%). For slides, the decrease was 66,6% (from 90 hours to 30 hours in the same period).**

Even though the department suffered an increase in volume of samples processed during the study period, **the hospital staff saved 4415 hours annually in tissue sample management.** This time gained by automating their workflow, has enabled the hospital to **reassign 2.5 FTE positions** to aid in other areas that support patient care. The workflow of archiving samples became more efficient and eliminated errors.

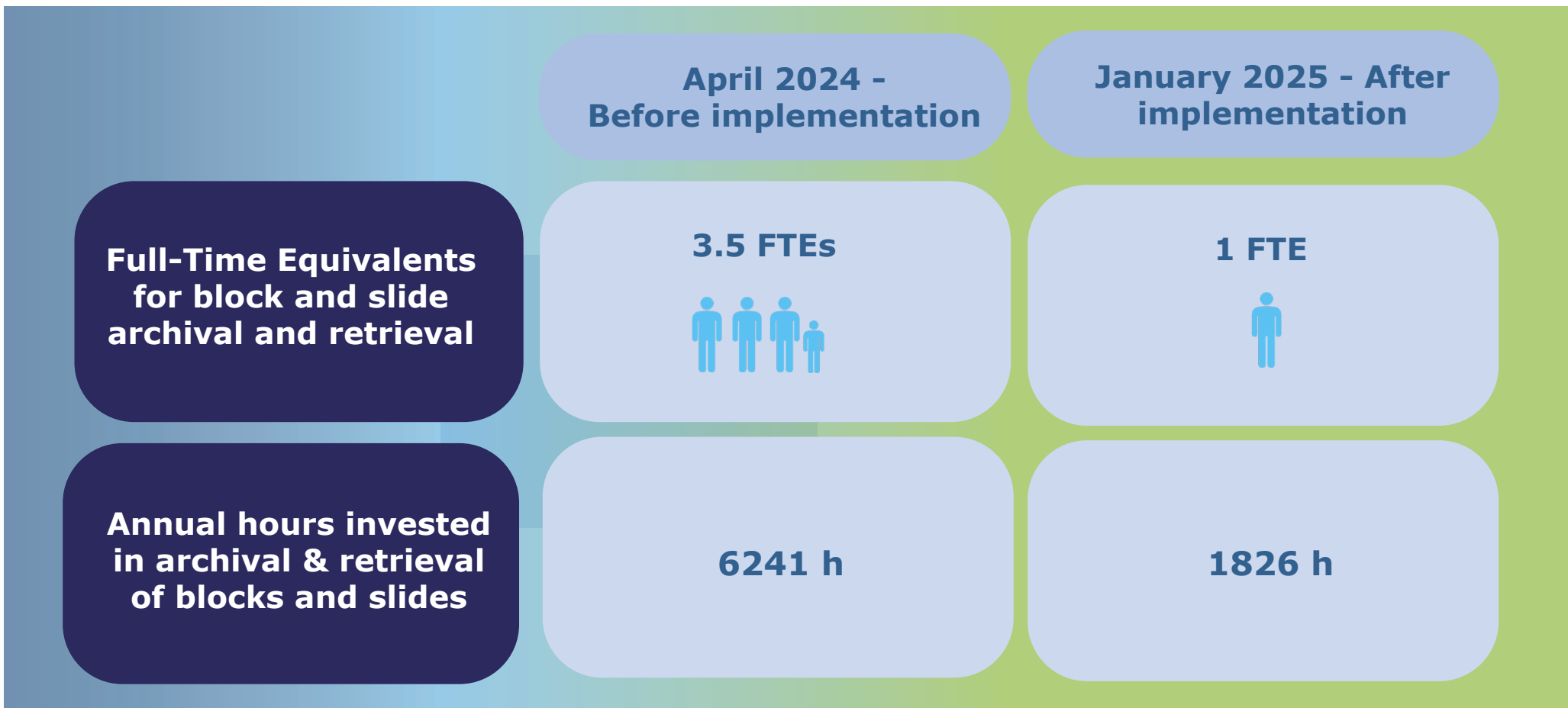


Figure 1: Staff before and after implementation

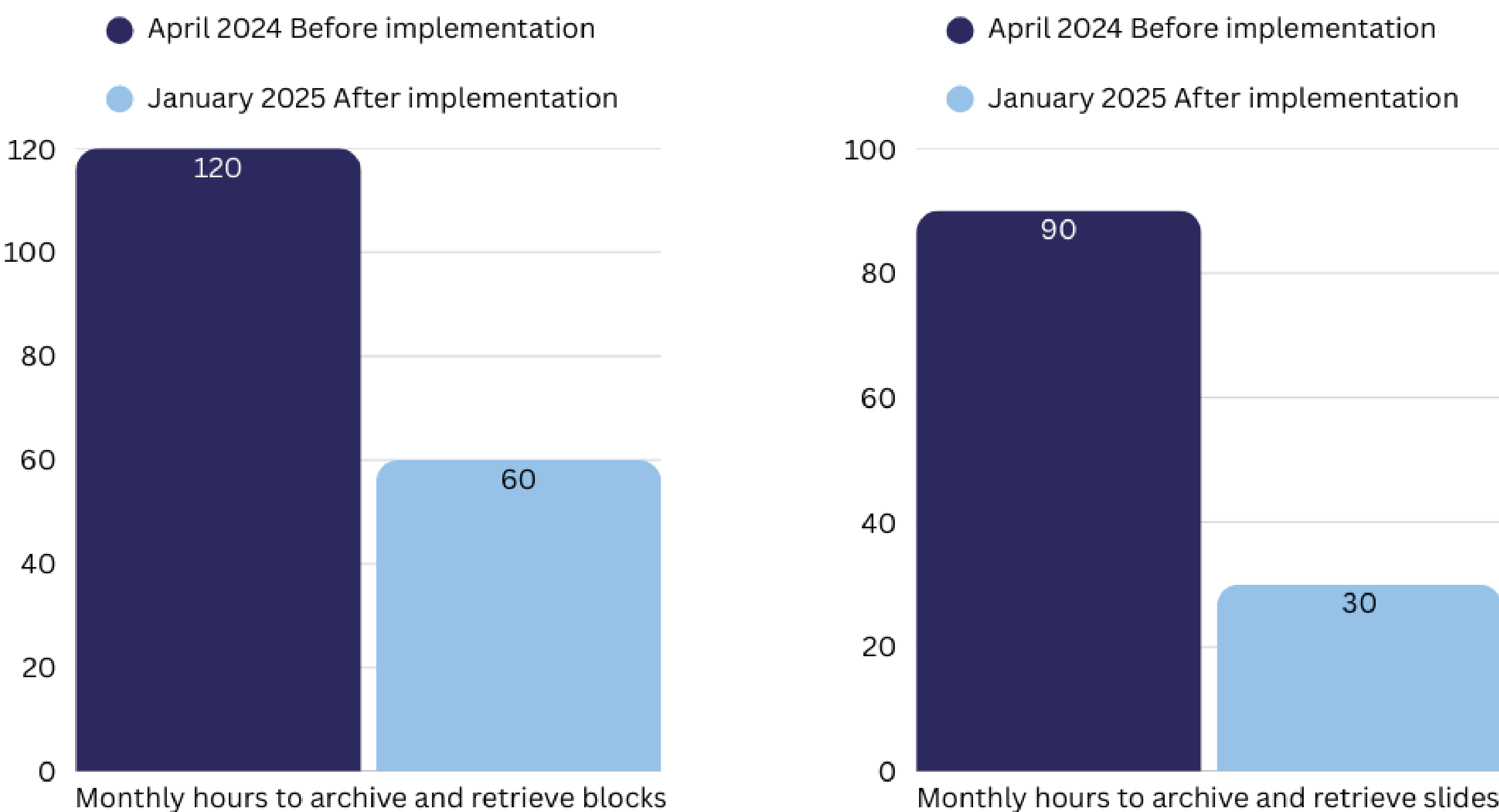


Figure 2: Archive and retrieve block and slides monthly hours

4. Conclusion

The implementation of these systems revolutionized tissue sample storage and retrieval, significantly enhancing patient care and safety. Faster, more precise access to blocks and slides allows for faster diagnosis, enabling earlier treatment.

Additionally, these advancements have **improved laboratory workflow, reducing stress and minimizing the risk of sample loss.** Staff benefit from increased efficiency and job satisfaction, fostering a more productive work environment.

Ultimately, these innovations streamline operations while ensuring better outcomes for both patients and laboratory professionals.

