

Lessons learned for artificial intelligence (AI) projects

Considerations for implementing AI projects between clinical providers and public health agencies

What follows are considerations based on lessons learned during the implementation of a pediatric audiology reporting project that used generative artificial intelligence (GenAI) to translate clinical notes into categorical values. For more information on the specific project, please visit the Early Hearing Detection and Intervention (EHDI) resources page at phii.org/ehdi-resources.

Initiate

The initiate phase of a project focuses on building a business case and obtaining leadership support to proceed. This stage defines the project scope and develops a better understanding of the necessary partners. The following are considerations for the first stage of the project:

- Choose a clinical partner with a history and culture of innovation to mitigate potential resistance to taking on the risks of implementing proof-of-concept (POC) projects; consider early adopters as guided by the Diffusion of Innovations theory.¹
- Engage internal and external partners early to secure essential buy-in. Roles include clinical leaders and audiologists, as well as staff from Leadership, Audiology, Information Technology teams (EHR, Cloud, Clinical Informatics, Data Science), Cybersecurity, Legal, and Public Health.
- Highlight the successful implementation of the project by other innovators.
- Connect this project to the organization's strategic priorities and establish measurable impact indicators for tracking project progress.
- Expedite approvals by confirming the project is not research and highlighting its connection to state-mandated reporting.
- Clarify vocabulary and project terms to ensure mutual understanding and effective communication among technical, clinical, and public health partners.
- Be aware of the technical partner's company headquarters, employees, and data storage facility locations, as some government entities require data to reside or be processed in U.S.-established and maintained locations.

¹ Dearing JW. Applying Diffusion of Innovation Theory to Intervention Development. Res Soc Work Pract. 2009 Sep 1;19(5):503-518.

Plan

The plan phase helps determine critical aspects in managing the overall project scope and work. As you plan for an artificial intelligence (AI) project, it is important to spend time understanding the problem, defining the ideal solution, and identifying the necessary roles and responsibilities required for successful implementation. The following are considerations for the planning stage:

- For project support, request an IT project manager to set deadlines, hold parties accountable, and maintain project momentum.
- Define the project scope, define milestones and timelines, and identify and confirm resources to support the project.
- Leverage existing public health AI resources, such as [PHII's EHDl resources website](#) and published articles ([Artificial Intelligence and the Public Health Workforce—Preparing for Our Future](#), [Artificial Intelligence and the Practice of Public Health](#), and [AI and the Public Health Enterprise: From Interest to Action](#))
- Clearly define roles and responsibilities from the beginning by drafting a project [RASCI \(Responsible, Accountable, Supportive, Consulted, Informed\) chart](#) (download available).
- Plan for realistic timelines by accounting for IT prioritization, security approvals, and data agreement lead times.
- Document current and future state workflows from the pediatric diagnostic audiologist's perspective before starting implementation to ensure the solution aligns with clinical and programmatic needs.
- Clearly outline the proposed data flow from the clinical system to public health to understand the applications and potential intermediaries involved in the secure transmission of protected health information.
- Identify the specific structured and unstructured data elements from the EHR that will be extracted and processed by the Large Language Models (LLMs).
- Communicate the intentional lack of specifications related to the LLM input, as generative AI does not require the traditional specifications that other applications do.
- Identify possible updates to the EHR to better capture the necessary information, as the AI can only translate the data that can be extracted from the EHR.
- Consider additional use cases that may benefit from an application of this nature.

***“Success relies on having the right people in place
who are willing to take risks.”***

Execute

The goal of the execute phase is to complete quality deliverables and meet the objectives of the project. During this phase, the team will document requirements, collect testing results, and develop key artifacts for communication, training and go-live documentation.

- Begin conversations with the data recipient early to establish and test connectivity.
- Hold regular check-in meetings to maintain project momentum.
- Send meeting agendas with a list of questions to clearly outline expectations and participation.
- Establish a process for identifying and mitigating project risks, such as competing priorities of IT resources.
- Generate a robust dataset for testing with a minimum of 500 sample reports.
- Employ human-in-the-loop validation to ensure LLM calculations and data outputs align with clinical expectations.
- Develop and implement a change management plan to ensure impacted staff are aware and have ownership of the process.
- Consider a phased rollout to break the project into manageable components and provide opportunities to celebrate milestones along the way. Phases could include 1) connectivity, 2) testing, 3) roll out of one use case with evaluation, and 4) roll out of additional use cases with evaluation.
- Develop a communications plan in expectation of any upcoming changes.

Monitor

The monitor phase should begin at the beginning of the project and continue as long as the solution is active. Innovative solutions like AI tools require ongoing updates and monitoring.

- Set clear expectations for monitoring at the beginning of the project.
- Align metrics to organizational strategic priorities (improving efficiencies, data quality).
- Highlight the project's impact both internally and externally throughout the project, not just at the end.
- Plan for maintenance of the LLM due to required updates or improved models, which will require retesting and validation from clinical experts.
- Monitor system utilization and costs as the solution is adopted by more users over time.

Close

The close phase of the project wraps up the project and transitions to maintenance and operations.

- Account for long-term operational needs by securing resources specifically designated for the continuous maintenance and retraining of open-source AI models.
- Identify a plan for reviewing new LLM versions and determining when upgrades are necessary.
- Broadly share your findings and successes through conference presentations, press releases, blog posts, and formal publications.
- Develop a final project report and [RAID \(Risks, Assumptions \(or Actions\), Issues, and Dependencies \(or Decisions\)\) log](#) for ongoing monitoring and maintenance.