# Advancing Instant OpenHIE

## Two-Sentence Overview

The Instant OpenHIE project aims to reduce the costs and skills required for software developers to rapidly deploy an OpenHIE architecture for quicker initial solution testing and a starting point for faster production implementation and customisation. Instant OpenHIE provides a simple way for technical persons to install and see a complex system working against a real-world use case, allowing technical persons to illustrate how interoperability can work to solve health challenges and demonstrate how an interoperability architecture could be created using open-source tools and standards.

## Executive Summary

The Instant OpenHIE project aims to address the primary needs of (i) allowing implementers to engage with a preconfigured health information exchange solution and running tools (based on the architecture) and test their applicability and functionality with a real health context problem; and (ii) having a packaged reference version of the OpenHIE architecture that is comprised of a set of reference technologies and other appropriate tools that form the building blocks of the health information exchange that can be configured and extended to support particular use cases.

At maturity, Instant OpenHIE aims to provide portable, launchable versions of multiple OpenHIE components to facilitate:

* Demonstrable reference products that align with the OpenHIE Community's vision
* Rapid software development of mediators and point-of-service systems by making it possible to launch several applications together more easily.
* Reproducible, version-controlled infrastructure for user-contributed tests of the OpenHIE architecture profiles, workflows, and use cases.
* Production-ready containers and orchestrable components that are deployable in any context.

The project consortium has partnered on the initial phase of the Instant OpenHIE project, which focused on the development of a core prototypical health information exchange using open standards and open-source software, centered on a particular use case and set of technologies, as well as the development of an extensible conceptual and technical architecture that allows for new packages, components and apps to be added to the Instant OpenHIE offering.

The Digital Square investment will be used to support two areas of work:

* Supporting communities aligning their solutions to be part of the Instant OpenHIE project and initiative, improved contributor guidelines and tutorials, and architecture revisions to ensure ease of use in extending and deploying Instant OpenHIE.
* Advancing the features and maturity of Instant OpenHIE towards the objective of a ‘shelf ready’ solution.

## Consortium Team

Jembi Health Systems will lead and oversee the project, working with IntraHealth as a partner to deliver on the scope of work.Jembi is an African non-profit company specialising in digital health and open source software development and implementation. Jembi has a successful track record developing and implementing open source software in the health sector, including in a number of African countries. It has contributed to many open-source software development projects and communities of practice, including OpenMRS, Bahmni, OpenHIM, HEARTH and OpenHIE.

IntraHealth International is a global health NGO with a 40-year history in developing successful data tools and digital health applications for health workers and managers. IntraHealth develops solutions that are open source, data-driven, sustainable, and collaborative. As a pioneer in the field of health workforce informatics, IntraHealth is committed to using technology, information, and analytical approaches to support the people at the center of our health systems.

## Project Description

**Background and Problem Statement**

The Instant OpenHIE project aims to create a deployable version of the OpenHIE architecture that is preconfigured to work together and provide a demonstrable instantiation of the OpenHIE architecture. While the initial phase of the project focused on development of a core framework to allow new packages, components and apps to be added to the Instant OpenHIE offering, additional efforts are required to move towards being a 'shelf ready' global good, both in advancing the software maturity and strengthening community support to better enable adoption and use of Instant OpenHIE by the community at large.

**Objectives**

The main objective of this project is to expand and strengthen the Instant OpenHIE offering to enable the solution to solve new health challenges through the use of open source software and standards. This will be achieved through a set of activities across the areas of Community Support and advancing Software Maturity to both strengthen the Instant OpenHIE offering and enable alignment of other solutions to be part of the Instant OpenHIE project and initiative through a set of contributor guidelines & specifications, and active support to other solutions working towards alignment with the Instant OpenHIE project.

**Deliverables & Schedule**

Under the Community Support work package, the team will work to support the user community aligning their solutions to be part of the Instant OpenHIE project, assist with identifying potential use cases and package structures across these solutions to solve particular health challenges, and complete documentation and video tutorials on how to add use/add a package to Instant OpenHIE.

Under the Extending Instant OpenHIE work package, the team will look at extending the Instant OpenHIE offering to support a new priority use case. The proposed use case centers on support for a clinical package to support patient-centred workflows within Instant OpenHIE, including integration of a Client Registry component, extending the FHIR server capabilities to support longitudinal patient data workflows (i.e. SHR workflows), and mediator services to support these workflows. Based on other solutions chosen to align their solutions to be part of the Instant OpenHIE project, this use case may be revised and updated to support new opportunities and workflows.

Under the Architecture Revisions work package, the team will work to revise the Instant OpenHIE architecture as necessary, to ensure using instant OpenHIE is as easy as possible for others to extend and deploy, help expand the capabilities of Instant OpenHIE to allow 3rd party packages to be added by the user at will, and develop template scripts to help others bootstrap their solutions.

Under the Software Maturity work package, the team will look to further develop the command line app or web ui to easily plug in packages, view logs and see the services that are running. In addition, there will be a focus on more clearly describing the testing framework and requirements for testing when contributing to, and using, Instant OpenHIE.

Under the IOL Mediator Offerings work package, the team will look to integrate and package a set of OpenHIM mediators into Instant OpenHIE, including, for example, the OpenHIM mapping mediator, file queue mediator and other standards-based mediators. The aim of this is to extend the capabilities of the Instant OpenHIE offering (e.g. to allow for asynchronous message processing or out-the-box support for data exchange standards), while also providing a starting point for developing data exchange logic for those aligning their solutions with Instant OpenHIE and looking to support new workflows and use cases. The mapping mediator serves as a general service that supports development of validation, transformation and orchestration of messages for non-technical users, allowing for simple and quick development of workflows and business logic.

Jembi and IntraHealth will jointly address the project activities, allocating work to each group as appropriate.

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| **Deliverables** | **Timeframe** |
| Ongoing support to the user community aligning their solutions to be part of the Instant OpenHIE project. | Month 1 - 12 |
| Ongoing architecture revisions to ensure ease of use in extending and deploying Instant OpenHIE. | Month 1 - 12 |
| Updated documentation and tutorials on how to add a package to Instant OpenHIE. | Month 1 - 2 |
| Confirm priority use case and package structures, based on clinical use case, or in support of other solutions aligning their solutions to be part of the Instant OpenHIE project. | Month 1 - 2 |
| Extend Instant OpenHIE offering (apps, packages, workflows and test scripts) to support priority use case. | Month 3-12 |
| Template scripts to help others bootstrap their project. | Month 3 - 4 |
| Expanded capabilities to allow 3rd party packages to be added by a user to Instant OpenHIE. | Month 5 - 6 |
| Updated terminal and/or web UI features (easily plug in packages, view logs, monitor running services). | Month 7 - 8 |
| Updated testing framework and test harness cater for new packages and use cases | Month 9 - 10 |
| Integrate OpenHIM mediators into Instant OpenHIE | Month 11 - 12 |

**Risk Mitigation**

Under the Community Support activity, the team proposes to support other Notice E0 awardees to align their solutions to be part of the Instant OpenHIE project. To ensure that Instant OpenHIE is well-placed to support the specific needs of a range of different solutions, technologies and use cases, the team proposed to include an initial assessment and analysis of these solutions, which will feed in as requirements during the architecture revision and software maturity work packages.