ANNUAL REPORT 2020

INTEROPERABILITY
INSTITUTE

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INTRO
FROM THE VICE PRESIDENT

To say that the Interoperability Institute has had an exciting and unpredictable first year would be an understatement. From the official kickoff last October to our recent celebration of IOI's first birthday, the Interoperability Institute has grown from a few individuals to a diverse and collaborative team that has been hard at work making IOI a hub for healthcare IT innovation.

Our first year has been a time of constant development and growth, as seen in the enablement of four software Development 'Squads', four releases of the Interoperability Land (IOL) sandbox, enhancing our synthetic data product offerings, and providing professional development to insure expertise with data standards and new technologies. In May we hosted our first virtual connectathon-style InterOpathon event, bringing together professionals from across health IT industry to work together to create, collaborate, learn and problem solve innovative solutions using the Interoperability Land platform.

During its first year, the Interoperability Institute became the new home of the MiHIN Student Internship program, which we are proud to say was awarded Student Workforce program employer of the year by Grand Valley State University in September. The student workforce program placed 105 students in 2020 across all subsidiary companies, the largest number to date.

Our hard work this past year has not gone unnoticed. From being invited to present at the Amazon Web Services Public Sector Summit in March as the healthcare representative to our first IOL sale to the University of Michigan Medical Informatics program in June, to invited presentations to Federal Agencies, the Interoperability Institute has already begun to make our impact on the community around us and the world of health IT at large.

Despite the unanticipated challenges 2020 has thrown at us, the Interoperability Institute has had a busy and productive first year full of exciting accomplishments. We are optimistic that these next years will be as exciting and productive as our first, and that we've assembled a dedicated team that is expertly equipped and excited to meet the next round of opportunities head on.

Mary Kratz
Executive Vice President, Interoperability Institute (IOI)

INTRO TO THE INTEROPERABILITY INSTITUTE

THE INTEROPERABILITY INSTITUTE'S PURPOSE AND DRIVE

Interoperability Institute (IOI) was formed as a limited liability company (LLC) with MiHIN as the sole member, made operational in October 2019. IOI is dedicated to advancing interoperability in the healthcare industry by serving as a highly desirable source for skilled talent and a neutral focal point for the adoption and standardization of emerging technologies and innovations. Its vision is to advance innovative technologies and identify best practices such as those related to cybersecurity in the cloud or conformance with standards. IOI also envisions creating an ideal forum for professional development, where novices can be mentored by experts through community collaboration activities. Partnerships with organizations and professionals in academia, standards development organizations, government, technology incubators, and private sector companies, broadens IOI reach and impact of a diverse collective of expertise to build and mature a comprehensive set of interoperability solutions. The MiHIN relationship brings IOI credibility, coupled with investments in infrastructure, legal governance/policy framework, and IOI internal research and development resources.

In today's healthcare landscape there is no shortage of value-add opportunities. However, IOI must be surgically focused on areas that deliver high-impact value for short- and medium-term revenue while positioning for future strategic activities. Critical to this phase is balance of critical investments from strategic spends, balancing the opportunity costs of investment over high-value/high-impact alternatives. Accordingly, the following areas have been selected for IOI focus opportunities in the coming two years:

- HIT Interoperability Platform-as-a-Service (IOL testbed/sandbox)
- Data Access and Enablement
- Workforce Development
- Solution Enablement
- Community Partnerships

A cloud hosted digital collaboration platform designed to power the future of multi-organization development, integration, acceptance, and testing of innovative technologies, shared services and open standards.

Created by the Interoperability Institute, Interoperability Land™ (IOL) is a simulated healthcare environment designed to power the future of interoperability through innovation, integration, acceptance, and testing of technologies and open standards within a collaborative, digital platform. Organizations may install a private secure instance of Interoperability Land™ for their own use, or may opt to use it as a collaboration platform.

Interoperability Land™ (IOL) uses synthetic data, so that organizations can test and validate solutions in a safe environment, without concern for personal health information (PHI) and associated privacy/legal constraints. Interoperability Land's™ synthetic environment allows for the testing of systems using technology and healthcare standards, such as Health Level Seven (HL7) Fast Healthcare Information Resource (FHIR®), OAuth2 and other cybersecurity protocols, human services standards such as NIEM (National Information Exchange...Model), ANSI's X.12, to enable the use of Application Programming Interfaces (API's).

A simulated healthcare network populated with highly realistic, clinically relevant, synthetic patient data where organizations can learn, build and test healthcare applications and services with no risk of PHI disclosure.

INTEROPERABILITY LAND™ (IOL) COMPONENTS INCLUDE:

PatientGen A synthetic "safe" test data generator that produces realistic patient histories at scale.

Common Data Gen A synthetic data generator that provides a snapshot of an organization's data lake, using machine learning and predictive models to produce a realistic data pack for simulation testing.

Personas Realistic and complete synthetic longitudinal representation of a person's health data. Personas have unique attitudes, conditions, and environments that affect how they interact with each other and the healthcare system.

Single Organization Testbed A single server, hosted in a cloud environment by Interoperability Institute, and populated with resources that emulate an "edge" organization like a hospital, HIE or health plan.

Healthcare Ecosystem Testbed A persistent network of 12-20 simulated healthcare organizations, hosted in a cloud environment by the Interoperability Institute, and populated with synthetic patient data that is choreographed across the organizations within the 'ring' of the healthcare ecosystem simulation.

Powered by Amazon Web Services (AWS) A scalable, high availability, cost optimized Platform-as-a-Service (PaaS) hosted in the AWS cloud.

CONNECTATHONS AND INTEROPATHON

- An HL7 FHIR® Connectathon is a two-day event of hands-on FHIR development and testing in a safe environment that encourages learning through trial-and-error and critical thinking in a group setting.[1] This innovative event presents an opportunity for implementers and developers to gain experience developing FHIR-based solutions and sharing data with other FHIR interfaces.

- IHE Connecthathons are described as "a cross-vendor, live, supervised, and structured testing event where industry leaders test implementation of Indiana Health Information Exchange (IHIE) Profiles to advance health IT interoperability."[1] One of the benefits of IHIE Connectathon Testing is the opportunity to learn, collaborate, and network with more than 550 of the industry's top experts at the largest interoperability testing event in existence.

- To reach target customers for Connectathons, Interoperability Institute will scale up efforts to promote offerings through the following channels: 1) hosting and co-sponsoring events and conferences to promote the value added by IOL and our event management expertise, 2) publishing blogs and promotional content on social media highlighting our successful track record of virtual and in person collaboration events, and 3) and utilizing email and other interactive asynchronous marketing strategies to reach prospective targets asynchronously. Once targets for Connectathons are established, our team customizes our combined offering of the IOI product and event coordination to meet the client's needs, taking into consideration the potential for revenue to our affiliated organizations and opportunities for workforce development when constructing pricing and terms for each event.

Over a decade of MiHIN event hosting experience and expertise are showcased by our IOI Connectathon product. Connectathons provide a collaborative opportunity for the developer community to design, develop, and test interoperable solutions within highly realistic and safe environments. Traditionally the functionality required in these environments can differ across teams of developers or vendors resulting in siloed prototyping and learning experiences. Interoperability Institute closes this gap by leveraging Interoperability Land to power our Connectathons. With IOL, Connectathons provide a truly collaborative experience for developers. Whether connecting proprietary sandboxes or accessing a provided turnkey FHIR server, developers have access to a network of FHIR environments, also known as Ring of FHIR, which house robust synthetic data and sample code and enable realistic interoperability testing among an entire gabit of simulated healthcare organizations.

To build engagement and dependency on our systems-neutral IOL platform, Interoperability Institute offers practical, rapid-start training guides as well as virtual and on-site support options for developers with less experience with data standards, ensuring no developer is left behind. For organizations interested in hosting their own Connectathon, Interoperability Institute alleviates the traditional barriers of time and cost by leading event preparation, promotion and outreach, facilitation, and post-event follow up to organize participant feedback and results.

In our outreach toward selling Connectathons as a co-brandable and white-label friendly service to event sponsors, the Interoperability Institute has begun efforts to target technology incubators across the nation, health plans, health systems, states looking to establish a technical community, and multi-organizational associations, consortiums, alliances, and networks. Our research shows that all of these entities have similar needs for a simulation environment, and IOI's custom implementations of IOL assure individual stakeholders get the value they require from each implementation.

Our team recognizes the necessity for hypervigilance regarding the everchanging landscape of national initiatives is key in monitoring the environment for opportunities to participate, influence, and provide situational context. Our team has already identified two potential collaborators for Connectathons that include national initiatives from HL7 and Integrating the Healthcare Enterprise (IHE).

OUR FIRST VIRTUAL INTEROPATHON

Community building was front and center at Interoperability Institute's (IOI) first virtual InterOpathon event in May. The event took place over the course of a month with various webinars. The event brought together leaders in health care information technology from across the country to build interoperability solutions needed for compliance with new federal government health care regulations. The InterOpathon venue enabled knowledge sharing and building of software solutions that address current health care issues.
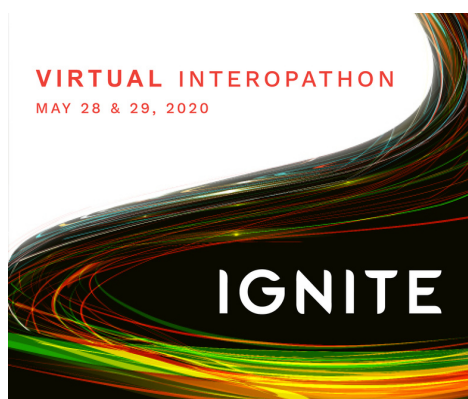
The event, which was moved entirely online this year due to the ongoing COVID-19 pandemic, focuses on understanding how organizations can translate interoperability standards into real-world solutions. Attendees were placed into virtual teams and tasked with creating a solution to an advanced health care use case. The event's program committee consisted of national leaders from the Health Level Seven® (HL7®) Fast Healthcare Interoperability Resources (FHIR®) Accelerator Programs.

Use case challenges for the event align with the HL7 FHIR implementation guides:

- CARIN Alliance provides IG for consumer access to health care information
- DaVinci Project supports Payer-Provider solutions that positively impact clinical, quality, cost and care management outcomes
- Gravity provides IG that address social determinants of health, such as housing security
- Project Unify extends the HL7 standard to human services such as child protective services

Participating teams had complete access to a robust simulation environment called Interoperability Land™, that provides a health care ecosystem, loaded with synthetic data packs, access to Application Programing Interfaces (APIs) and cloud services provided by team sponsors.

In total, nine submissions were received as part of the challenge. United Together – Social Determinants of Health came in first place, with – Prior Authorization and the FHIR Men – Caredocket coming in second and third respectively.

VIRTUAL INTEROPATHON
MAY 28 & 29, 2020

IGNITE

WORKFORCE DEVELOPMENT: PAVING THE WAY FOR FUTURE HEALTH IT VISIONARIES

To both establish IOI as a preferred employer, attracting and retaining top talent, as well as advancing and supporting Health Information Exchanges for ongoing success through strategic sourcing of talent, continued investment and advancement of Workforce Development as a core capability is prudent. With its applied experience, educational ties to University programs, and industry reach, IOI is well positioned to identify skillset needs and gaps in the marketplace, and to advance programs to address those areas through education, internships, mentoring opportunities, and curriculum advancement.

The pragmatic application of new and innovative ideas ideals suites these efforts. Applying the program as a 'innovation' incubator allows for research and discovery of new approaches and assessment of promising industry activities and trends while simultaneously advancing workforce capabilities, all in a managed risk environment. Participants grow their individual skills, while discoveries and lessons-learned feed the institutional capabilities and corporate portfolio, with effective solutions finding their way into emergent mainstream offerings. The process of innovating, problem-solving, applied use of methods and assets, and industry relationships benefit both the organization and the emergent workforce. This creates preferential experiences that carry into future influential roles, while positioning IOI as a preferred supplier and incubator.

The Interoperability Institute endeavors to redefine internship opportunities by helping students not only to obtain a rich, learning experiences with continuous mentorship from industry leaders, but also to simultaneously support organizations and universities to facilitate the placement process for their graduates. The Interns at IOI play a vital role because they represent our future internally and scale our impact externally. They encompass a broad range of educational backgrounds, which offer the opportunity for interns to develop strong collaboration skills while working with a variety of industry leaders.

AN INTERVIEW WITH ONE OF OUR OWN

Matteo Althoen, Software Development Intern

- **Why did you choose to come to the institute?**

  I'm currently in the Master of Health Informatics program at UofM, and very interested in health data exchange specifically. This seemed like the perfect fit for me to gain the experience that I need for my major and career aspirations.

- **How do you think this program differs from other internship programs?**

  This is my first internship; this one seems very hands on and I don't feel like I'm given "intern tasks". I work directly with IOI and their development teams. My work doesn't seem to differ too much from my mentors, which is cool.

- **What is your favorite part about working here?**

  I started in May. I definitely like the flexibility that is offered. The fact that IOI continued to hire on and keep their word on internships during the middle of a pandemic is admirable. It's also nice that they trusted me enough to have me work from home right off the bat. I also feel very supported by my mentor, Preston Fraser, an IOI Senior Developer.

- **What challenges do you face in your role?**

  Now since I'm back in school, being both virtual for school and work means a lot of screen time. Another challenge is that this a very new role, the software development intern. But with that, I have been introduced to so many new software languages and processes.

- **How do you think this experience will help you in the future?**

  The biggest thing is the exposure I'm getting to the big problems facing healthcare IT. All the projects I've been working on relate to care coordination. So being able to see the complexities behind the scenes, and the backend process of how everything is built has been an excellent learning experience. I feel that I am prepared for the next steps in my career path, by working with IOI teams and being exposed to building real-world solutions.

OUR MILESTONES IN FY 2020

OCTOBER

- IOI operational kickoff event, including the transition of the MiHIN Development team to IOI
- IOL presentation at Michigan HIMSS

NOVEMBER

- IOL MVP goes live on AWS marketplace
- IOL beta partners provide assessment of the new product offering

DECEMBER

- IOI Human Resource shared services moved from MiHIN to IOI.
- Student Internship program moved from MiHIN to IOI

JANUARY

- IOL enhanced with HL7 FHIR DaVinci CDEX use case
- BCBSM hosts an InterOpathon event in Detroit, MI
- IOI/IOL represented at the ONC Summit, Washington, DC on the implementation of cloud services

FEBRUARY

- First Development Squad enabled
- IOI All Hands Meeting
- ADT Hub discovery initiated

MARCH

- Synthetic Data pack products released on AWS Marketplace
- HL7 FHIR Accelerator Roundtable presentation on IOL
- HIMSS presentation on IOL as part of the AWS cloud showcase

OUR MILESTONES IN FY 2020

APRIL

- Third release of IOL with additional HL7 FHIR use cases for DaVinci, Gravity, CARIN and HS Lynk (human services sandbox)
- 2nd Development Squad enabled
- Michael Ackerman, PhD joins IOI Board, from his recent retirement as Director of High Performance Computing at the National Library of Medicine/NIH

MAY

- Virtual InterOpathon brings together HL7 FHIR Accelerators for a 'cross-FHIR' event, for the first time enabling interoperability for multiple FHIR resources into real world scenarios on IOL
- IOI joins the Stewards of Change National Interoperability Collaborative
- Michigan HIMSS and IOI form collaboration, partnering on building the next generation HIT Workforce by providing early career opportunities to IOI Student Associates
- The University of Michigan joins the MI HIMSS collaboration partnership with IOI

JUNE

- IOI turns one year old!
- First IOL sale to the University of Michigan Medical Informatics program
- 3rd Development Squad enabled
- DEQM Use Case implemented on IOL
- HL7 FHIR Training for Everyone provided to the family of companies

JULY

- IOI keynote presenter at the AWS Bioinformatics and Life Sciences Summit
- Interop Station discovery initiated to address solution for new federal rules compliance
- IOI initiates Customer Success Team and enables IOL market-place assessment through structured customer interactions.

AUGUST

- Fourth Development Squad enabled
- IOI All Hands Meeting
- Intelligent Query Broker integrated into ADT Hub for robust HIT functionality to address interoperability for SHEIC stakeholders

SEPTEMBER

- New Synthetic Data Packs offered on AWS Marketplace, including multi-use case Event Pack
- HL7 FHIR Accelerator Roundtable presentation to the Object Management Group, Business Process Management for Health community

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