



**INTEROPERABILITY
INSTITUTE**


ANNUAL REPORT 2021

interoperabilityinstitute.org



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LETTER FROM EXECUTIVE VICE PRESIDENT

2021 has been an exciting second year at Interoperability Institute (IOI). We continue to grow as a diverse and collaborative team working hard to make IOI a hub for Healthcare IT (HIT) innovation.

Our HIT software development squads have grown from four to six, enabling a robust cloud-based technology platform. Our developers are driving improvements such as Agile and Continuous Integration/Continuous Delivery (CI/CD) capabilities. The development squads added Cloud Engineers in 2021, furthering our expertise to deliver world-class Health Information Exchange (HIE) products and services. This complemented our innovation pipeline, a development squad positioned at the leading edge of data standards, and enabling technologies to further our HIT capabilities.

IOI also established Enterprise Services in 2021 to provide efficient operations at all levels, including our vendor, relationship, and financial management in addition to maintaining virtual workspaces as the COVID pandemic continues to persist.

Human Resources continues to provide state-of-the-art shared services to our HIE customers with the implementation of a new Human Resource Information System (HRIS). The new HRIS includes a Learning Management System, with a robust array of learning modules that are available to all entities that are supported by IOI Human Resource shared services.

Diversity, Equity, and Inclusion (DEI) is an initiative for which IOI Enterprise Services and Human Resources provide leadership roles. This initiative is instrumental to realize respect for the unique needs, perspectives, and potential of all our team members that guides our actions and decisions.

Industry Engagement was established in 2021 to provide stewardship of InterOp.Community, a collaboration of organizations to advance healthcare interoperability using open platforms and open-source software.

Our Workforce program is rapidly expanding, and IOI was awarded a planning grant from AmeriCorps to enable HIT skill building. Students in our workforce program gain unique experience at the crosshairs of health sector business processes and enabling technologies.

IOI is excited to have received 501 c3 non-profit status from the IRS. As a new non-profit entity IOI focused on building industry reputation in 2021. This is now being realized via invitations from public sector agencies, legislative interests, private companies, and academic partners to join collaborative efforts to further HIT implementation, standards, and the development of a skilled HIT workforce.

2021 has been a busy and productive year full of exciting accomplishments. Our dedicated team is expertly equipped and excited to meet the next round of opportunities head on.

Mary Kratz

Executive Vice President



ABOUT IOI

Who we are

Interoperability Institute is a non-profit organization, created to enable organizations and communities to harness the benefits of interoperability at scale. This mission is achieved through two broad functions: solutions development and workforce skill building.

IOI was formed as a Limited Liability Company (LLC), and was awarded non-profit status in 2021.

Our non-profit status now allows us to collaborate with public sector agencies, legislative interests, and academic partners in addition to private companies.

Our mission

The mission of IOI is to enable organizations and communities to harness the benefits of interoperability at scale. This mission is achieved through next generation workforce training, interoperability testbed standardization, and solution development focused on enabling interoperability and standards.


IOI's direction is to serve as a focal point for creating communities and environments that accelerate the adoption of interoperability in ways that result in greater health and more impactful delivery of human services.

Passionate, inventive, and inspiring

IOI is a passionate and determined company of high performing and focused problem solvers who pursue both growth and learning.

As an inventive and inspiring organization IOI drives diversity of thought with a natural curiosity that is both adventurous and exciting.

IOI is a respectful and humble company with a positive team environment driven by integrity and trust.



Our commitment to diversity, equity, and inclusion

At IOI, we recognize that our diversity is our greatest strength. We draw on the differences in who we are, what we've experienced, and how we think to best serve our stakeholders and our communities.

Because IOI serves everyone, we understand the importance of including everyone. This means we strive to hire, develop, and retain qualified employees that are not only diverse in thinking, but are also diverse in race, gender, gender identity and/or gender expression, age, religion or belief, sexual orientation, physical, mental or sensory disability, citizenship, family or partnership status, socio-economic upbringing, and more.

We know intentionality around diversity, equity, and inclusion are critical to the wellbeing of our staff and the success of our organization, which is why we are committed to constantly striving to improve.

Impacts this year

- Formation of a DEI Team with executive sponsorship and board support.
- Collection of data on staff experiences and perceptions of diversity, equity, and inclusion.
- Development of strategic goals for this year and next based on our completed needs analysis.
- Creation of over fifty unique DEI-related learning opportunities for our staff.
- Embedding of DEI-related learning and conversation into team practices.
- Addition of pronoun identification into our CRM tool, on-boarding materials, and email signatures.
- Implementation of learning around inclusive practices and unconscious bias into our on-boarding process.
- Recognition of MLK Day and Juneteenth as observed holidays, and approval of volunteer hours for staff on Veteran's Day.
- Creation avenues for staff to learn about and participate in observance of Pride Month, Black History Month, and Mental Health Awareness Month.

Where we aspire to grow

- To strive towards an even more diverse workforce by increasing diversity in our talent pipeline
- To foster a culture of learning, growth, and discussion
- To cultivate a work environment where everyone feels heard, valued, and respected
- To make diversity in leadership a strategic mission across all levels of formal and informal leadership
- To become an industry leader in using Health IT to increase healthy equity and address social determinants of health that lead to disparities in health outcomes

Our current environment

At IOI, we believe that everyone should be able to bring their full selves to work. That's why we are fostering a culture where our differences are valued, and all staff feel a sense of belonging. With this goal in mind, we aspire to create a workforce that's representative of the communities we serve, and while we are still on that journey, we commit to sharing where we are towards this goal.

The power of community

InterOp.Community launched

In 2021 IOI stewarded InterOp.Community for the purpose of achieving data interoperability through providing a Cloud-based next generation sandbox to help build, launch, and test health apps as well as model real world healthcare scenarios with synthetic data. IOI joined forces with Integrating the Healthcare Enterprise (IHE) USA, Interopion, BPM+ Health, Red Hat, and Qvera to provide a unique open-source technology incubator and committed to providing a platform for thriving open-source communities. IOI is both investing in the collaboration and drawing from it to mature its original Interoperability Land™ product, which is a safe, collaborative, simulated healthcare environment. IOI and its unique partnership with InterOp.Community brings together powerful innovative tools.

Introducing Meld | a virtual sandbox

A key to engaging implementation solutions is to provide communities of interest with a virtual technological environment, commonly referred to as a “sandbox”, that allows users to design, test and prototype software both independently and/or collaboratively with the option to transfer selected activities to a private environment at any time. This flexibility allows developers to innovate with tools of an enterprise environment and none of the overhead.

The fully synthetic data existing in Meld allows for users to “fail forward” when working with the data, as there is no risk of Protected Health Information (PHI) or Personally Identifiable information (PII) exposure. Each Meld user has the ability to create sandboxes rapidly, preloaded with synthetic data that is available in FHIR® DSTU2, FHIR® STU3, and FHIR® R4 formats.

Open-source sandbox:

IOI developed and delivered Meld through InterOp.Community as an open-source healthcare sandbox. IOI takes a leadership role in the code curation of the Meld open-source code base to improve the usability of the Meld sandbox with added functionality and enhanced user experiences.

eConsent Collaborative

The February 2021 Industry Day event confirmed a need for a national electronic consent or eConsent collaborative from the public, private, SDO, and not-profit entities. IOI is committed to the eConsent collaborative community-of-practice (COP) by stewarding the eConsentCollaborative website with a focus on the use of eConsent within the healthcare domain, with a particular initial focus on Advanced Care Planning (ACP). The purpose of the collaborative is to bring together stakeholders from across healthcare to work together to find viable, interoperable health IT solutions in this space. This is an open Community of Practice emerging through the InterOp.Community, and its work products will be shared with organizations worldwide that could benefit from their use.

Hosting this activity is a coalition of non-profit organizations and standards-development groups whose decisions will be driven by a Steering Committee. Currently involved in the activity are:

- BPM+ Health (BPM+) – a healthcare community-of-practice focused on sharable pathways and open standards.
- Interoperability Institute (IOI) – Serves the industry via the employment of solutions development and workforce training to harness the benefits of interoperability at scale.
- Object Management Group (OMG) – an international, open membership, not-for-profit technology standards consortium.
- Point of Care Partners – a leading management consulting firm that assists healthcare organizations in evaluating, developing, and implementing health information management strategies.

Synthetic Data Products

Synthetic data products are created by a statistic population health model generator that is based on true patient data elements. Each data set is made up of highly realistic synthetic patient data that can be used for testing purposes without risk of disclosing PHI. Additionally, personas are available for specific use case needs.

- Data Packs on the Amazon marketplace include but are not limited to COVID, ADT data pack, CCD data packs, and combo packs
- Personas including pregnancy, pharyngitis, sexually transmitted infection, breast cancer, and congestive heart failure are available
- Customized data packs and personas are available by request

Interoperability Land™

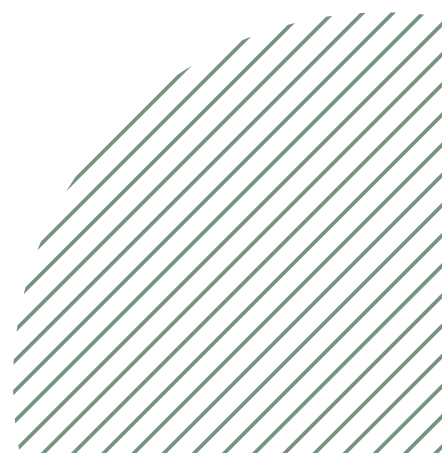
IOI provides a private sandbox called Interoperability Land™ (IOL), which is a fee-for-service proprietary 'locker' offering available on the AWS Marketplace. Organizations can test using millions of simulated patient data files or highly realistic personas across the synthetic health care ecosystem. The FHIR enabled data in IOL is arranged across a collection of synthetic health care entities to reflect a realistic health care environment. IOL is a secure Cloud-based OAuth 2.0 supported hosted environment. Using IOL, you can quickly stand up your internal interoperability lab to test the compliance of your solutions, educate staff, or securely collaborate with partners on events or development efforts.

Industry Engagement

The newly formed Industry Engagement Team (IE Team) is positioned to define the customer base, measure increases as the result of activity, perform market analysis, improve product through the unique relationship with the Innovation Squad, and control delivery of the marketing strategy and tools. The team is focusing on Voice of the Customer (VOC) and Voice of the Market (VOM) with a spotlight on the public, private, and academe sectors.

The VOC and VOM programs were instituted in 2021 to provide insight and build a closer bond with our customers and improve internal collaboration which in turn provides a stronger customer experience. This insight will provide up-to-date research related to direct competitors, indirect competitors, upcoming engagement opportunities, and other valuable market research information. Market research will be done thoroughly and routinely upon request by the IE and Executive Leadership teams. These programs will allow for road mapping and feature development of IOI products to ensure they are cutting edge and valuable.

In 2021 the IE Team worked in concert with the IOI Innovation Team to develop new features, provide enhancements, and arrange demonstration opportunities for the IOL and Meld sandboxes. The IE Team will continue engagement with Standards Development Organizations (SDO) through events and working groups to spotlight our sandbox capabilities.



R&D accomplishments and milestones

The IOI Development teams accomplished many key development milestones during 2021 as summarized below.

Q1 2021

- Social Determinants of Health (SDoH) initial software release for processing SDoH screening data.
- Delivered successful InterOpathon with a national health plan.
- Architected and built a robust cloud based HIE platform.

Q2 2021

- Developed and released The Basics of FHIR eLearning.
- Developed and deployed a Conformance Reporting solution to allow reviewing metrics and quality details.
- Developed and deployed the Provider Directory API and Patient Access API to assist payers with meeting the ONC Health IT Final Rule and the CMS Interoperability and Patient Access Final Rule.
- Developed and deployed identity service solution and ability to view CCD data through a state HIE that serves a large population.
- Provided a sandbox environment for testing an Advance Directive Interoperability Implementation Guide. This environment uses a set of synthetic data to load and successfully test data exchange between two HIEs.
- Developed an automated process to identify candidates for a Type 2 Diabetes chronic disease registry using pre-adjudicated claims and available clinical data.

Q3 2021

- Delivered the Provider Directory API live for multiple private payers and one state agency.
- Delivered Meld on Kubernetes for health care community as a sandbox.
- Creation of five new Personas based on industry needs.
- Developed Social Determinants of Health (SDOH) enhanced data handling for a to provide an enhanced user interface.
- Developed and deployed the data loading and analytics for processing SDOH.

Q4 2021

- Developed and deployed the first phase of Single Sign On (SSO) integration with a state Electronic Health Record (EHR).
- Patient Access API live for multiple private payers and one state agency.
- Participated in multiple Connectathons strengthening our ties with industry.
- Completed deployment of the eConsent product.
- Developed and delivered user guides for three state Health Information Network (HIN) projects, two Interopathons, and multiple internal user guides throughout the year.



WORKFORCE DEVELOPMENT PROGRAM

IOI's nationally renowned Workforce Development Program is designed to provide early career opportunities to address the talent gap in information technology and healthcare and ensure the supply of talent meets the current and emerging needs of the healthcare industry.

IOI partners with AmeriCorps, a national service program which is a network of local, state, and national service programs connecting student interns in intensive service to meet community needs. The AmeriCorps program in Michigan is led by the Michigan Community Service Commission (MCSC), who have enabled a planning grant for the Interoperability Institute to define an approach for a health IT AmeriCorps program. The Interoperability Institute workforce program helps establish student and mentor experiences to build the next generation of health IT professionals.

We spoke with two IOI interns to get a glimpse into their experience. Meet Naomi Verne and Valentino Laurich:

Why did you choose to come to the Interoperability Institute?

Naomi: I chose to work at the Interoperability Institute because I know first-hand how important healthcare communication and interoperability can be. When researching the company, I came across an example of a persona used in IOL. Her story was so relatable and made me think "what if my healthcare team had access to a tool like IOI? How would that have made my experience different?" In addition to the goal of improving the healthcare landscape, I really felt comfortable and welcomed during my interviews. While I was of course nervous, everyone on that call made space for me to ask questions, talk candidly about my experiences, and made sure I was a good fit for the team. So in the end, I knew IOI was the best combination of improving my skills, gaining experience, working with people I like, and making a difference in the world!

Valentino: I chose to work at the Interoperability Institute because of the role they play in bridging the gap between care providers across the state of Michigan. I love working for this organization because we play a pivotal role in improving health outcomes in the state of Michigan by reducing costs for patients and increasing accessibility to care.

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

N: This program differs from other internship programs because I don't just feel like an intern; I feel like I'm a part of a team. Whenever I talk with my fellow students about internships, I hear horror stories about miscommunication and doing menial tasks. But here my work and contributions are valued (even if I make mistakes) and I've had the opportunity to grow in new skills instead of just using the ones that I brought to the internship!

V: The mentorship program does a great job at developing their interns into successful professionals in the career they want to pursue. Morgan Schrauben, our Program Manager does an amazing job teaching interns professional communication and interviewing skills. She also has workshops that show us interns how to enhance our resume, cover letter, and LinkedIn profile.



What is your favorite part about working here?

N: My favorite part about working here is a combination of the people and the work that we're doing. The people here are exceptionally kind and welcoming and have always made sure to include me/other interns in the conversation and not just as wallflowers. I'm also the kind of person that loves to see the bigger picture and have my work go towards improving someone's life, and I can see that work being done daily here.

V: I really love being a part of the security team. Over the last year and half, I have learned so much from these people and I can't thank them enough for the opportunities they have provided me. My mentor, Graham Raby believes in me and the work I do and is always one call or message away if I have any questions or concerns.

What challenges do you face in your role?

N: The biggest challenge I face in my role is not becoming burnt out. Everyone has those days or weeks where working online without human interaction becomes too much, but my mentor (Stephanie Arntson) encourages me to prioritize and take my time thinking about situations at work. I find that while I work well under pressure, encouragement to take a step back, breath, and look at it from a new perspective helps prevent me from burning out while working on a project.

V: Prioritizing time between projects and avoiding burnout.



OUR MILESTONES

Presentation to the Department of Defense Science Day

Transition to Agile SAFe

CMS 2020 Annual Meeting

Developed the Health Information Data Dictionary for MiHIN COVID/SDOH

National Interoperability Collaborative: Spotlight article for the National Action Agenda

OCTOBER 2020

NOVEMBER 2020

DECEMBER 2020

Implemented a virtual InterOpathon to support a learning event for a large national health plan with over 30 organizational participants

Convenor of public and private partners for eConsent Industry Day event to explore the viability of eConsent approaches and solutions in Advance Care Planning

ONC Technology Showcase; IOI presentation

Hosted a private InterOpathon with a large payer to educate their organization on FHIR capabilities, HL7 use cases and API connections for 21st Century Cures Act compliance

JANUARY 2021

FEBRUARY 2021

MARCH 2021

Enterprise Architect in Residence joins IOI team

State HIT Connect Summit; IOI presentation

MELD sandbox launched; AmeriCorps Planning Grant submission

APRIL 2021

MAY 2021

JUNE 2021

CMS FHIR Connectathon participation; IOI invited to HL7 Gravity Strategic Advisory Committee to address SDOH HIT standards

HIMSS podium presentations, IHE showcase, AWS showcase

Joined Global Digital Health Partnership (GDHP), created five Synthetic Personas as International Patient Summaries (IPS), and added to Meld to collaborate across six national systems globally

JULY 2021

AUGUST 2021

SEPTEMBER 2021

COMMUNICATION IS KEY

@THEINTEROPINST

@INTEROPERABILITYINSTITUTE



108%
INCREASE

105 TWITTER FOLLOWERS GAINED

92

TWEETS IN 2021



68%
INCREASE

133 LINKEDIN FOLLOWERS GAINED



50% INCREASE IN
SOCIAL ENGAGEMENT



10 PRESS RELEASES
SENT FOR IOI

LOOKING AHEAD

The goal is to position IOI as a recognized and serious HIT industry contributor.

Our focus is on building trust over time, and improving the following areas:

- Market Exploration and Research Aggregation
- Value Models for Products and Services
- Website Updates
- Interoperability Land (IOL) Product and Services Market Strategy
- Business Development

Vendor and partnership management

In 2021 there were four sales of product and it is estimated that 2022 will improve the number of sales to ten by reaching out to government, commercial, and academic communities with varying pricing strategies.

Workforce program

To address the talent gap in healthcare information technology IOI is committed to providing valuable career experiences in a variety of pathways through our expansive workforce development program. IOI employed 60+ interns in 2021 from a multitude of educational backgrounds. Our commitment to the career-enhancing workforce development program is underscored by offering a generous \$12,000 contribution for each student.

Innovation pipeline

IOI is dedicated to advancing the healthcare interoperability agenda via the use of open platforms and open-source software. IOI is joining forces with Integrating the Healthcare Enterprise (IHE) USA, Interopion and Red Hat to provide this unique environment which provides the Community of Practice (COP) with an industry convergence point and technology incubator to advance global and interoperable health solutions by providing standards driven interfaces for the common components found in modern healthcare systems such as Electronic Health Record (EHR), hospital, Health Information Exchange (HIE), lab, and insurer. IOI will both invest in the collaboration and draw from it to mature its original InteroperabilityLand™ offering and develop its open-source Meld sandbox.

Tactical plan

In 2021 IOI developed a Tactical Plan to guide us in achieving our strategic goals. The plan outlines the actions supported in achieving goals and objectives for 2021. The plan includes the following business outcomes:

- Enabling organizational success by developing, enhancing, and innovating our HIE solutions.
- Establishing an Industry Engagement Department.
- Providing robust software development and support that exceed our customer expectations.
- Developing and delivering robust staff engagement and training programs for staff of the entire organization and our industry partners.
- Develop and foster Academic, Public, and Private Partnerships.
- Establish IOI Core Operations Capabilities.

Industry engagement

The IOI Industry Engagement Team (IE Team) is dedicated to building stronger industry partnerships and customer relationships designed to meet long-term objectives and provide innovative solutions for our government, academic, and commercial prospects, clients, and investors. Through continuous communication and exchange of information with our industry and academic partners, we can sustain and improve our agile approach to engage with the global interoperability community to develop a strong industry presence.

BOARD OF MANAGERS

Rick Warren	Larry Wagenknecht	Jim Lee	Dr. Michael Ackerman	Krischa Winright	Dr. Stanley Huff
<i>Chair of the Board</i>	<i>Treasurer</i>	<i>Secretary</i>	<i>Board of Managers</i>	<i>Board of Managers</i>	<i>Board of Managers</i>

IOI LEADERSHIP

Tim Pletcher

*Chief Executive Officer
Interoperability Institute*

Dr. Tim Pletcher is the Executive Director of the Michigan Health Information Network Shared Services (MiHIN), a public and private nonprofit collaboration dedicated to improving the healthcare experience, improving quality and decreasing cost for Michigan's people by making valuable data available at the point of care through statewide health information sharing.

Igor Voytsekhivskyy

*Chief Financial Officer
Interoperability Institute*

Igor Voytsekhivskyy serves as Chief Financial Officer for Michigan Health Information Network Shared Services (MiHIN) where he leads finance, human resources and payroll. Igor is a Certified Public Accountant and holds a Master of Accountancy in Financial Accounting from the University of Mississippi.

Rich Fish

*Chief Technology Officer
Interoperability Institute*

Richard Fish is the Chief Information Security and Infrastructure Officer at Velatura Public Benefit Corporation, a subsidiary of Michigan Health Information Network Shared Services (MiHIN). In his current role, he oversees the enterprise information security program leveraging the latest cloud and serverless computing technologies.

Shreya Patel

*Chief Policy & Privacy Officer
Interoperability Institute*

Shreya Patel is an attorney in Michigan, focused in the areas of Healthcare and Privacy. In her role as Chief Policy & Privacy Officer for Michigan Health Information Network (MiHIN), she routinely examines the effect of national and state initiatives on interoperability and participates in the national dialogue surrounding the Trusted Exchange Framework and Common Agreement (TEFCA) and Final Interoperability Rules from the Office of National Coordinator for Health IT (ONC) and Center for Medicare & Medicaid Services (CMS).

Mary Kratz

*Executive Vice President
Interoperability Institute*

Mary Kratz is the Executive Vice President of the Interoperability Institute, an affiliate organization of the Michigan Health Information Network group. Mary is a leader in the field of biomedical informatics, working at the intersection of interoperability, telemedicine and business development.

Ken Van Der Wende

*Chief Commercial Officer
Interoperability Institute*

Ken Van Der Wende is the Chief Commercial Officer for Michigan Health Information Network Shared Services (MiHIN). As an entrepreneur, marketer, and business development professional, he finds opportunities for MiHIN to grow and gain traction in the health information exchange field.

Bharat Gandhi

*Chief Legal Counsel
Interoperability Institute*

Bharat Gandhi is the Chief Legal Counselor and Privacy Officer for Michigan Health Information Network Shared Services (MiHIN). In his current role, he oversees all legal matters for MiHIN, and has more than 20 years experience as an advisor to executives in manufacturing industries.

Isabell Pacheco

*Chief Operating Officer
Interoperability Institute*

Isabell Pacheco, DSc, FACHE is a healthcare leader with over 20 years of experience in operational and strategic healthcare management. She is a Fellow of the American College of Healthcare Executives, a certified expert on the 340B Drug Program, and completed a doctorate in Healthcare Leadership with the University of Alabama at Birmingham in September 2021. She is responsible for IOI operations and budgeting.