
Article

[Jane Yan](#) · Sep 19, 2022 7m read

We are Longevica, a digital senior healthcare ecosystem

Hello everyone!

We are Longevica (<https://www.longevica.com/>) Healthtech, a Boston-based healthy aging digital health startup. Longevica was born as a research company back in 2009; we pioneered the screening of chemicals, which would drastically extend the life span. With 1000 screened pharmaceuticals and 20 000 mice experiments, we have identified specific compounds that, if taken daily, could extend life by years. This discovery leads to two questions: how to measure the effect of aging progress in real-time and how to make this a lifelong habit. This led us to the digital health market to create a new company Longevica HealthTech.

Digging deeper, we discovered that non-adherence to prescribed medications is not number one. Still, top-3 problems, along with falls and lack of patient-HCP communication and responsible for 25 hospitalizations and direct \$300B cost every year, could be measured in billions of dollars in US Health Care. This was a life-changing moment when we first met InterSystems experts. Together we realized that in the face of significant challenges, especially for the aging senior population, several market enablers exist. These enablers create an opportunity for technological breakthroughs while allowing us to do the same that we already did with mice but in people - study aging online.

Here are the opportunities we see:

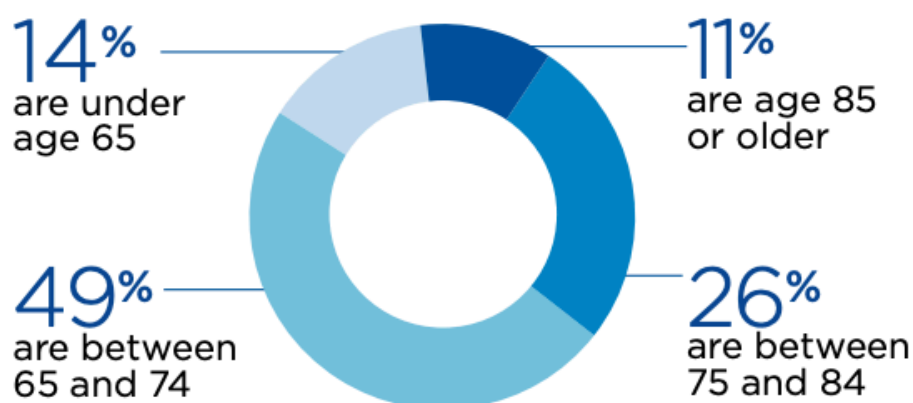
1. 21st century cures act, allowing companies to use a wide array of identified and deidentified medical data for research and product development. This regulation alone has led to the remarkable growth of FHIR-based services aimed at interoperability. As of now, we believe we can get relevant patient data in 95% of the cases. If the patient is inside an integrated healthcare system, over 80% of the time series are good enough to capture the aging trajectory.
2. Updates in CMS payment schedule in 2020-2022 introducing changes for reimbursement of remote patient monitoring and remote therapy monitoring. There are 62 mln medicare patients in the 65+ age group (our target audience), most of them with multiple chronic conditions and polypharmacy (with an average of 6-8 medications in their current treatment plan), which makes them perfectly eligible for remote monitoring devices and monthly follow up calls.
3. Digital transformation of the US healthcare system is in the right stage for starting unicorn projects - it is already ongoing, and most primary healthcare players have done tremendous work to shift to modern, interoperable EMRs. They are already used to using cloud data services for interoperability. However, one-stop-shop solutions that address significant domains like aging, cancer, maternity, and others are still not there. We think that our background in aging research allows us to create ecosystem approaches in senior care.



61.5M

Americans are enrolled in Medicare

WHO THEY ARE



InterSystems FHIR startup incubator — Caelestinus (<https://www.caelestinus.tech>) was that kick in the pants that set our whole team in motion; we applied for a batch of February 2022 with a project of the home-based device which would dispatch medications and record data from home devices into FHIR based micro EMR allowing HCP to monitor or be alerted seamlessly, and in addition to that using the cloud-based HealthShare solution we could dump over 100 parameters from EMR to present the hospital with Healthy Aging Score dynamics for every senior patient. By teaming up with leading research experts in the senior community, we proposed to use the electronic frailty index (EFI) as the starting point for precise assessment of the aging process. This technology alone had already proved itself in NHS in 2019 when, after scoring over one mln patients, over 200 000 were referred to so much needed medication review, and 70 000 were enrolled into fall prevention programs. A similar approach is used in vertically integrated Wake Health; weekly EFI is calculated for over 300 000 patients over 55 and used for patient triage and prioritization.

Learning by doing a tremendous amount of calls with all types of leaders in the field, we coined our hypothesis during the incubation period of 4 months. We would never expect that incubation would allow us to reach out to at least a dozen of members in the InterSystems community: operation engineers working tight with US hospitals, AI/ML gurus, top managers responsible for markets in the US, EU, UK, China, and lots of other great people who immediately engaged with our vision, while showing us streams of opportunities and bottlenecks of implementation. We have qualified for InterSystems Global Summit in Seattle. Anton (President, a serial investor with several IPOs) and Emmanuele (Chief Commercial Officer, founder of adherence device company called Pillo, recently sold to Black and Decker) brought the prototype of a home device and also demonstrated [Power BI dashboard](#) driven by InterSystems Adaptive Analytics which was

taking synthetic senior data (built by Synthea) transmitted from FHIR based repository. Here is a link to the [demo version](#) of the Healthy Aging Dashboard developed with TECCOD Analytics Agency, and this is a [demo video](#) of our device at home.

Randy Pallotta featured us in his keynote presentation at the conference.



As of September 2022, our solution has evolved immensely. We have started our first trial with a tablet version of our device, which engages seniors in measurement and adherence. We identify this as a chief obstacle for the RPM providers. While you can bring the RPM to homes, one would expect up to 10-20% falling off rates in the first months, and up to only 30% percent of seniors still continuously monitoring themselves after a year. These are significant money losses, let alone failure to prevent readmissions, ER visits, and lengthy hospital stays.

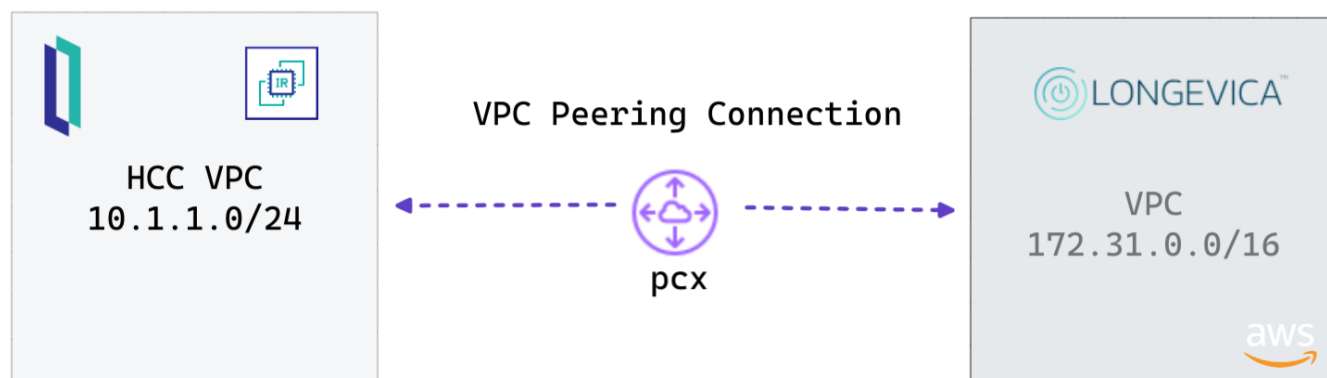
During the acceleration period, the Longevica team interviewed over one hundred companies providing solutions in remote and digital disease management, allowing us to create a bigger vision. For example, Pria (founded by our CCO) demonstrated the ability to develop protocols with 92% therapy and medication adherence. We aim to create an ecosystem to involve seniors in digital health management and to continuously add features like telehealth, RPM, caregivers connection, medication review, mobility and transportation, and many others to create disruption.

A brief look under the hood of our data connectivity for the tech-savvy would demonstrate that here in Longevica, we leverage the maximum from InterSystems interoperability solutions.

Our adoption of [InterSystems Health Connect Cloud](#) has matured considerably and readied ourselves for rapid onboarding of our customer-facing interoperability for our devices and data news for the solution.

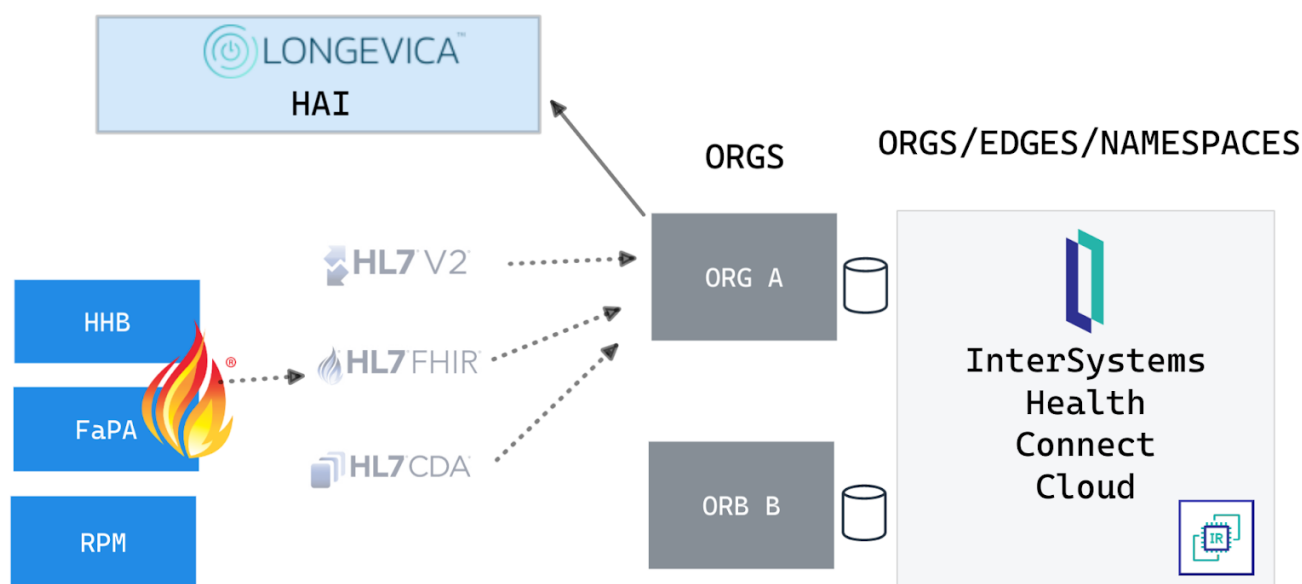
Connectivity

We connected our core infrastructure VPC with Health Connect Cloud using Network Connect, which de-coupled it from a publicly accessible service to be directly related to our core infrastructure.



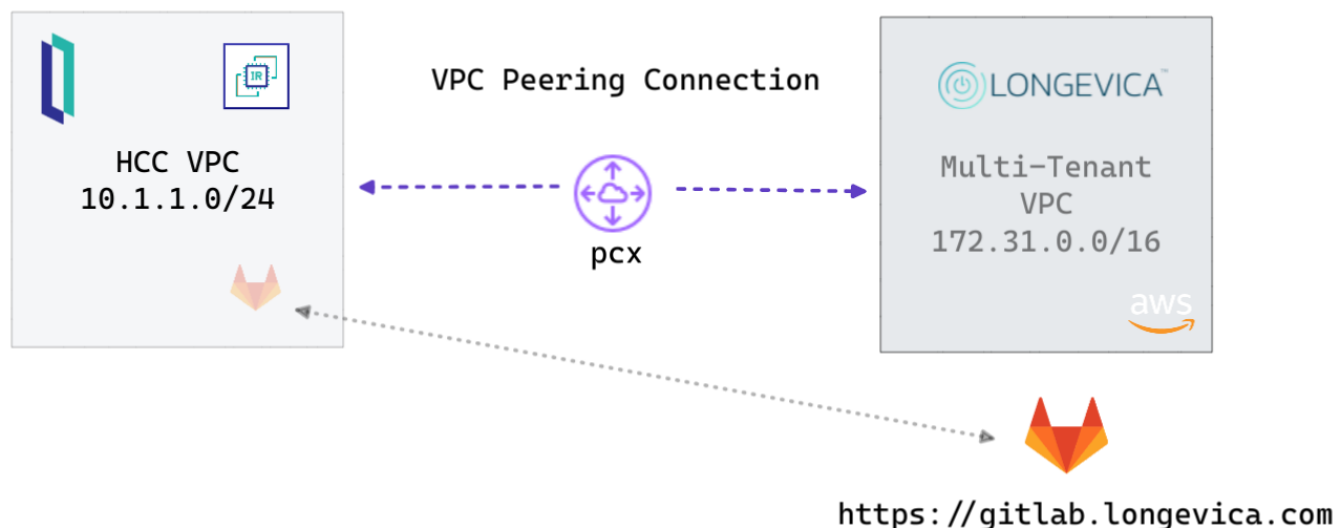
Multi-Tenant Edge Architecture

InterSystems IRIS supports multiple Namespaces for data segregation on a single platform so that FHIR Repositories provisioned on a single customer (tenant) will have a target for RPM, HHB, and FaPA devices and a retrieval point for HAI all of their own.



“ Interoperability As Code ”

IAC, “ Interoperability As Code, ” as we followed the InterSystems Opinionated Workflow for Health Connect cloud. Our HCC Deployment is managed by our own Gitlab Instance, which employs runners that execute against the service directly. This allows rapid development, auditing, and smooth promotion of data pipeline services across multiple namespaces and FHIR repositories.



Now a few months away from the first data points populating our FHIR repository, we look up to exciting possibilities of using built-in AI/ML solutions just released in recent versions of IRIS. For example, we aim to predict adverse events in elderly weeks before happening using aggregated data from blood pressure, pulse-oxy, heart rate, and glucose monitoring. Our initial request to incubator mentors was to help us build data silos that would be “AI/ML ready,” We hope to co-develop these functions with members of the InterSystems community.

Our business development plan is to connect existing solutions in elderly care, be it an MSK condition treatment digital app or a hypertension education and management plan. We have vetted over a hundred companies, looking at their clinical efficiency numbers, econometrics, and patient engagement and satisfaction results. We aim to release a market-ready version in 2023, including RPM/RTM monitoring, an evidence-based falls prevention program, engagement, reminder services, and telehealth capabilities.

We are looking for partners!

- Solution partners - solutions and technology that are impactful for senior health outcomes.
- Commercial partners - business development and channel sales
- Service partners - customer success services

Please reach out to us, we'd love to get connected!

[#Startup](#) [#Health Connect](#) [#InterSystems IRIS](#)

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