



Build IT Together:

How Participatory Development Improves Outcomes and Drives Adoption for County and State Technology Projects



Armen Arevian, MD, PhD
Founder, CEO at Chorus Innovations

November 2024



Agenda



Introduction



About Participatory Development and Case Study



Discussion

Introduction



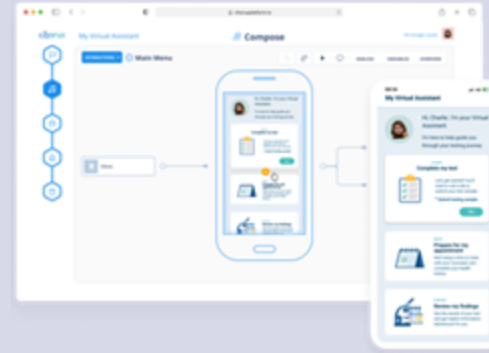
Armen Arevian, MD, PhD
Founder, CEO
Chorus Innovations

Background

- ◆ Assistant Professor-in-Residence in Psychiatry at UCLA
- ◆ Director of the Innovation Lab at UCLA
- ◆ MD, PhD in Neuroscience at University of Pittsburgh with research in participatory informatics at the intersection of health, technology, and community partnered participatory techniques



Chorus & Healthy African American Families
Los Angeles, 2012



Chorus Platform

Key Takeaway

Creating and implementing technology in a participatory way that involves authentic involvement by all stakeholders fundamentally reshapes what's created and who benefits, and can be an important driver of effective and transformative technology in healthcare.



Serving teams who are delivering care for all



Disconnected and inflexible tools leave gaps

Health agency teams rely on multiple tools including spreadsheets, email, siloed databases, and paper records.

These fragmented systems, lead to **staff burnout & gaps in care.**

Low adoption impairs the ability for change through technology



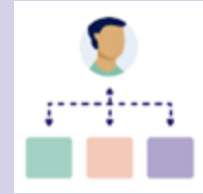
Current options for health technology implementation



Try to adapt an existing software such as EHR



Buy an “off the shelf” point solution



Manually fill in gaps with spreadsheets, email, PDFs, chat

Technology transformation happens in context

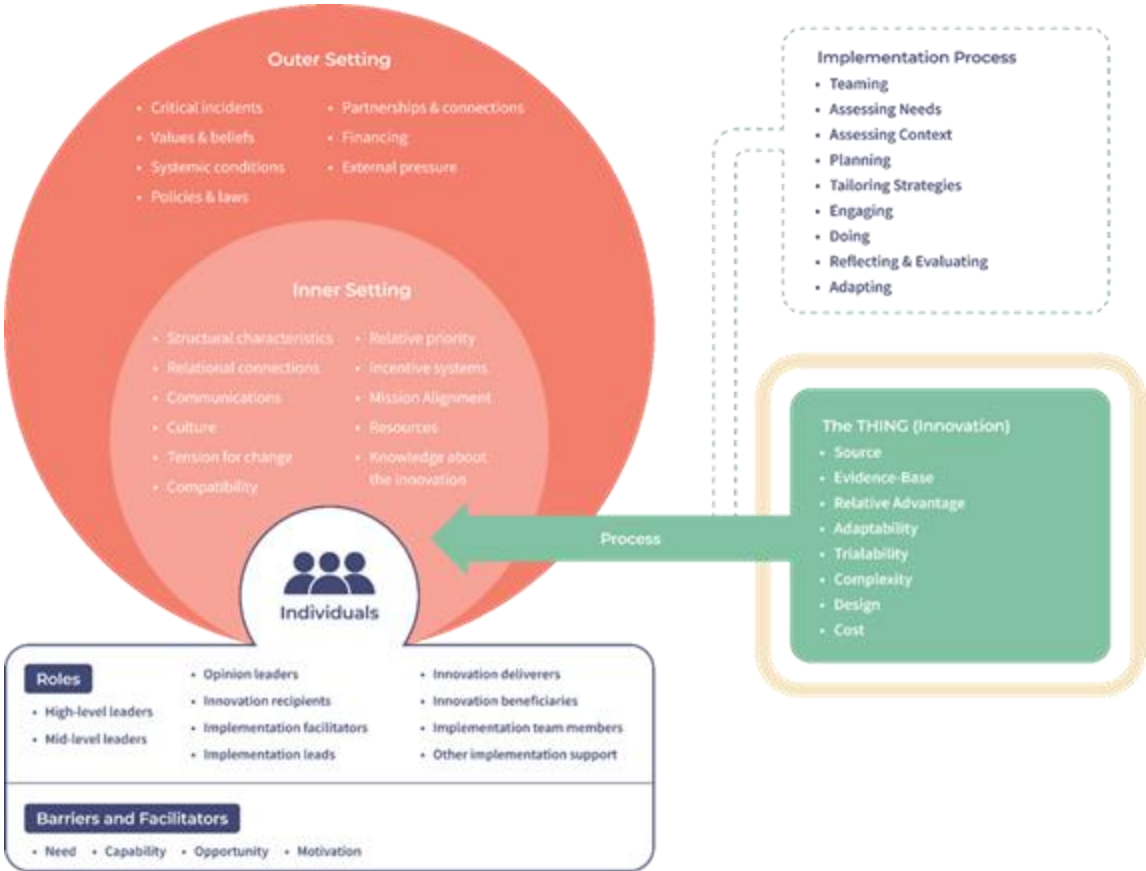
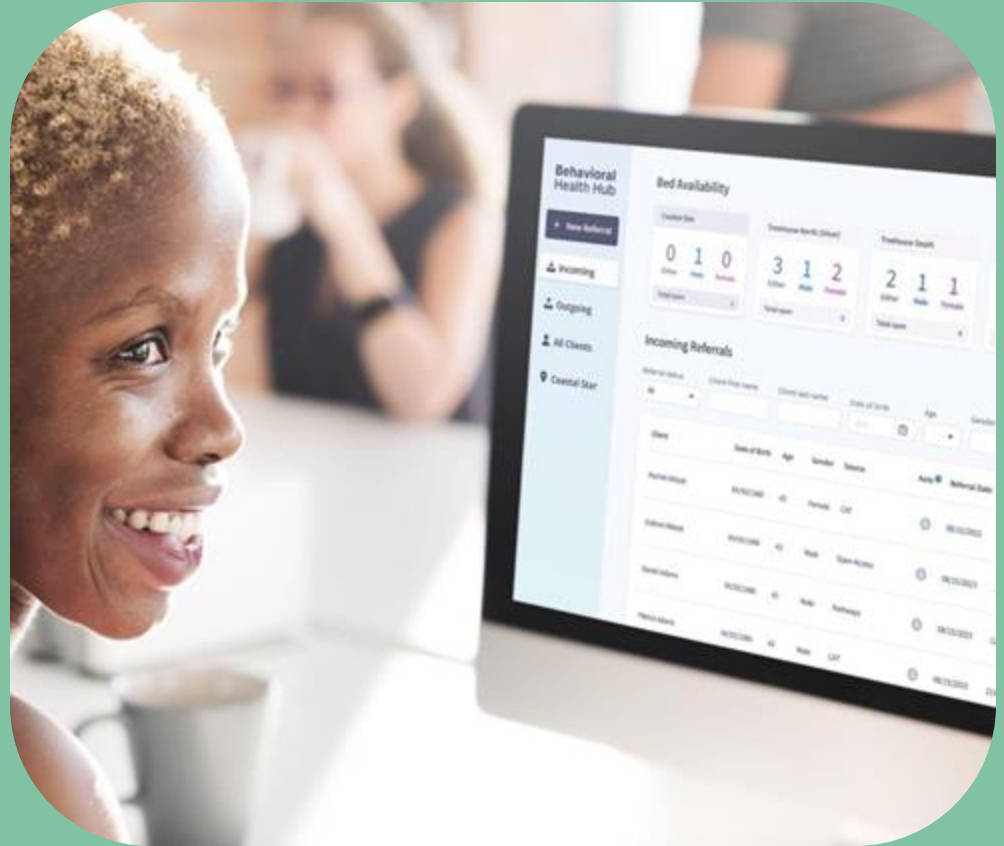


Figure adapted by Chorus from: Damschroder LJ, et. al. **The Updated Consolidated Framework for Implementation Research.** Implementation Sci 17, 75 (2022)

While we can't control every aspect of our mental health system, it is imperative that the parts within our control are optimized to ensure no client falls through the cracks.

Which Brings Us To...



How can we work towards adaptable technology for a *healthier future*?



Multi-pronged approach for sustainable and effective digital transformation



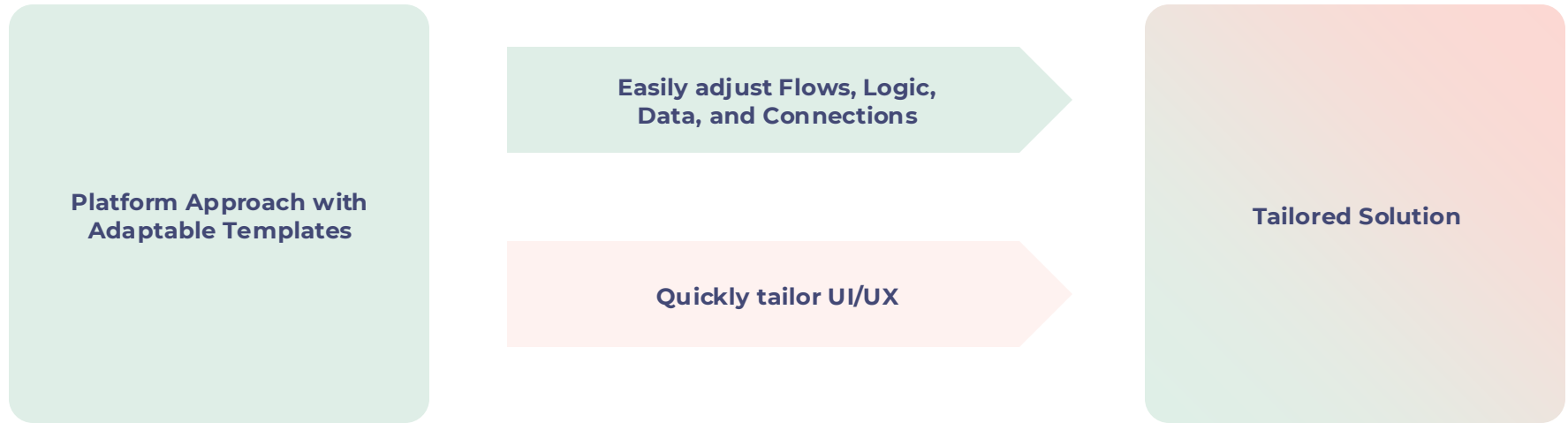
Participatory Development

An **inclusive, community-centered approach** addressing the lifecycle of innovation **from ideation, design, development and implementation.**

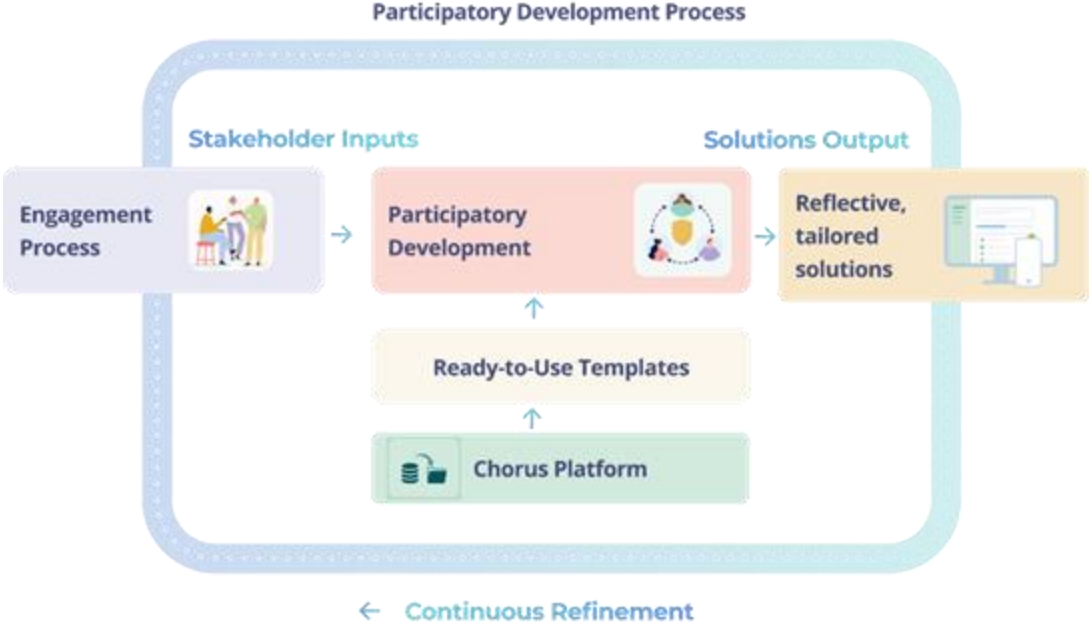
Focus is on **creating “with” rather than “for”**, building capacity, and engaging diverse stakeholders in the process.



Platform approach provides agencies flexibility by starting with building blocks and adapt together



The foundation of how we build a reflective and adaptive health system



Who creates matters

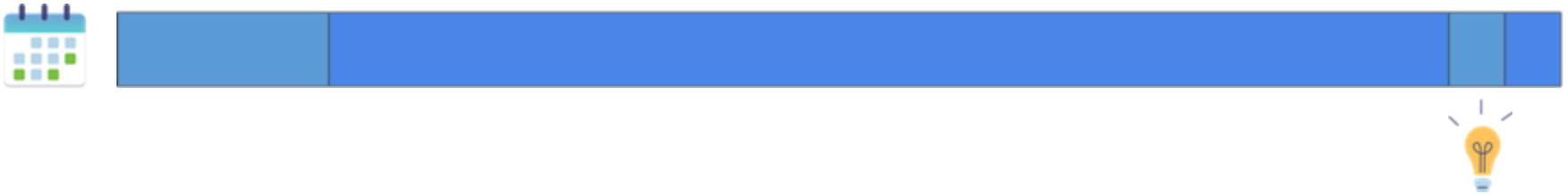




Time and “Ah ha!” moments

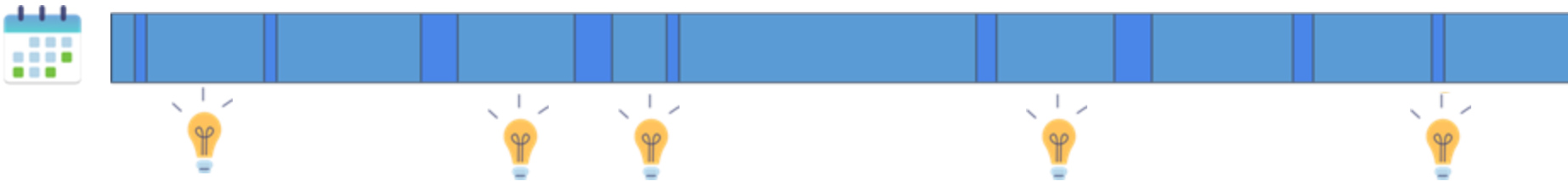
Traditional Development

Significant time spent in development, limited tailoring/improvements



Participatory Development

Majority time spent in design/engagement, lots of opportunities for “Ah ha!” moment.



Evidence-based approach to change



- Foundational peer-reviewed research
- Based on fundamentals of Community-Partnered Participatory Research and Self Determination Theory
- Explored the adaptation of participatory approaches to technology development and system transformation

Participatory Technology Development to Enhance Community Resilience.
Arevian AC et al. Ethnicity & Disease, 2018

Similar concepts applied to government change



- Incorporates key concepts from user centered design and product development to changing government systems
- Expanding who has input
- Supporting an agile rather than waterfall approach

“ *Difficult to use technology is worsening the workforce constraints. People don't want to come to work in an environment where tools are burdensome and dry.*

Creating tools that are beautiful and easy to use creates a positive, appreciative environment... and
moves the focus from process and paperwork back to helping individuals. ”



Case Study

Bringing a vision to life with a
California County Health Care Agency

Initial Problem

A community struggling to find and access the resources available to them



**Do I need help,
who to trust?**



**How do I find
& connect?**



**What's right for me?
my other needs?**

Solution

Community-led creation of a digital resource navigator

Iterative, community-centered process to create a Digital Front Door, connecting community with local resources across diverse needs.

- ◆ Continuous, deep partnership with community leaders and providers
- ◆ Community curated resources
- ◆ Admin portal for staff to curate and report
- ◆ Translated across 9 languages

Facilitates and simplifies connections to county warm-lines and further linkage to services.




oocnavigator.org


ooc Navigator About OC Navigator Find Resources Resource Guides Share Feedback Languages [Learn help now](#)

Apps and Online

Explore online resources to learn new things, start new wellness habits, and build your healthiest self.




Mental Wellness for All



Promise to Talk

This multilingual campaign is meant to increase awareness about the importance ...


[Website](#)



B4Stage4 - Where To Get Help

This survey can guide you on your options for getting help. When you've decided to ...

[Tools](#)



Together for Wellness

Together for Wellness-Mental Health and Wellness Tips For

We are a mental health and wellness resource with many levels of support.

[Website](#)

PEER SUPPORT

LGBTQ+ Support

Family support and acceptance are crucial for the well being of LGBTQ+ youth.

[Explore this resource](#)

PEER SUPPORT

Teen Substance Use

Recognizing the signs and causes of teen substance use can help you keep your teen healthy and safe.

oocnavigator.org


ooc Navigator About OC Navigator Find Resources Resource Guides Share Feedback Languages [Learn help now](#)

CLASSROOM SUPPORT

Creating Safe and Healthy School Environments

Mental wellness and learning go hand-in-hand. Help make your school a safe and positive space.

[Explore this resource](#)




I'm looking for...

- [Respite and Gratitude](#)
- [Resilience and Mindfulness](#)
- [Substance Prevention](#)
- [For Parents](#)
- [Classroom Support](#)
- [Peer Support](#)
- [Screening Tools](#)
- [Trauma Support](#)

SEARCHED BY NAME


Results (294)



Accredited CEU Courses

This website offers online certification training for nurses, case managers and administrators working in long-term care...


[Website](#)



Free Statewide Prescription Assistance Program

This website offers discount prescription drug cards that can save up to 75% at more than 56,000 pharmacies across the count...

[Website](#)



Marriage and Family Therapist Directory

This website has a searchable therapist directory for Marriage and Family Therapists in Orange County and the surrounding ar...

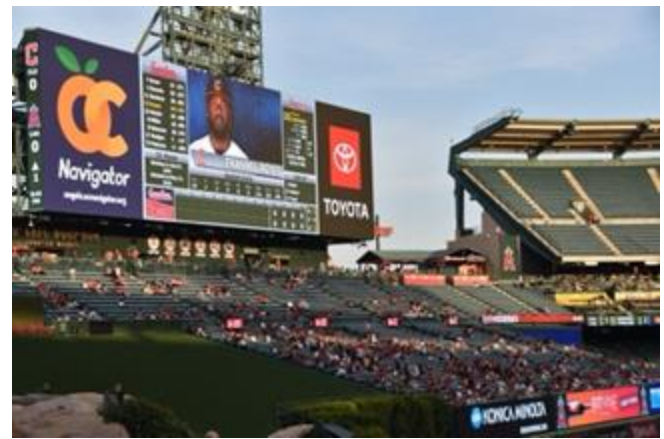
[Website](#)

RESOURCE TYPE

- App
- Article
- Tools
- Video
- Website

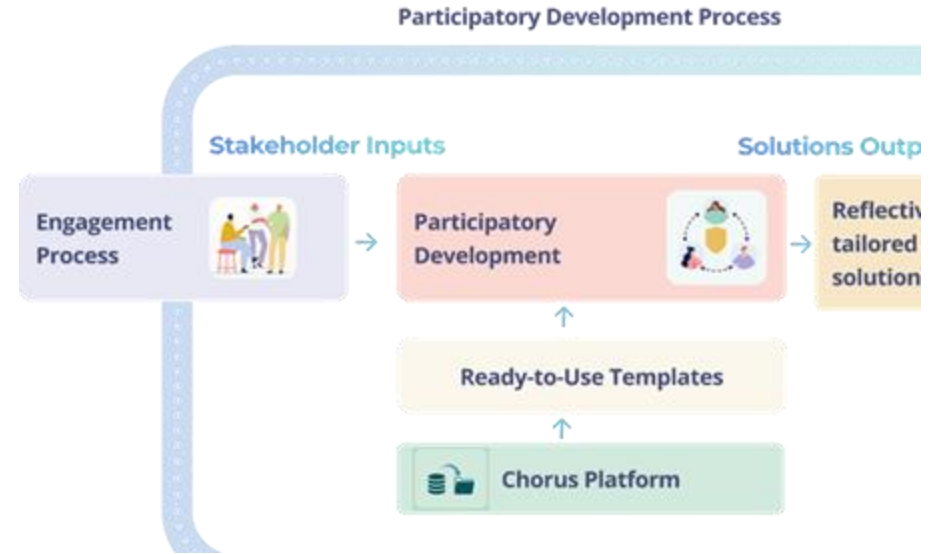
FOCUS POPULATION

- Child and Adolescent
- College and Graduate
- Families
- Infant, Toddler and Early Childhood



An emerging need

Replacing a mission critical tool quickly to support 24/7 crisis line



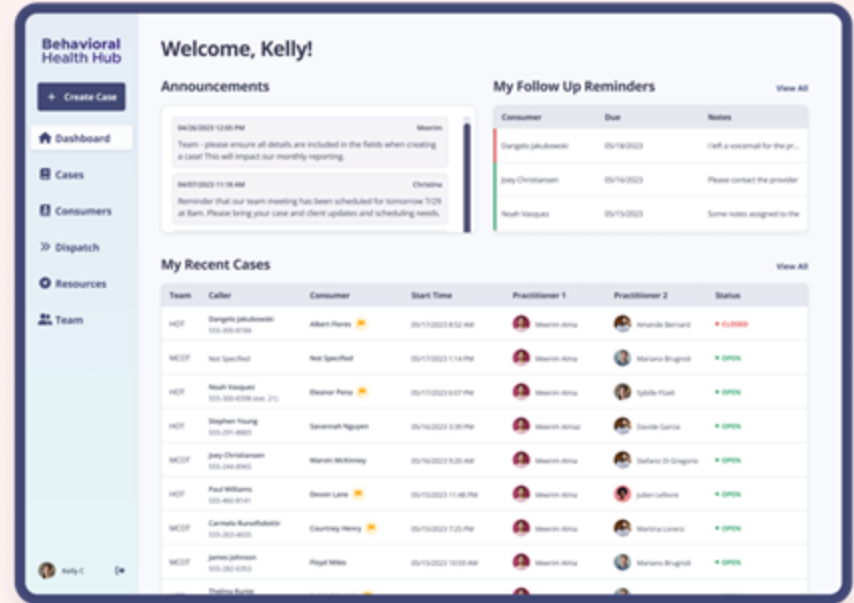
Solution

A new tool built with the team to streamline daily workflows

Iterative process to develop a tool that simplifies the daily tasks of a call center team to input, access, update, and share client information and case details across programs and sites.

Chorus helped:

- ◆ **Minimize clicks, embed best practices, and standardize processes** through UXR - informed design at the team level.
- ◆ **Enhance visibility and automate data capturing** of standard and novel data to:
 - Simplify reporting
 - Better inform decision making
 - Identify areas of programmatic and resource needs



A Vision Takes Shape

Unified digital solutions to empower care delivery

With the success of the initial participatory development, the county decided to address additional challenges including:

- ◆ **Manual process** for intake, tracking, dispatch, and referrals.
- ◆ **Limited visibility & communication** between programs, providers, and sites.
- ◆ **No flexible technology solution** that could provide custom workflows for existing processes and adapt to emerging needs.



Iterating and expanding over time allows for a more natural and comprehensive system transformation



2021

Previously, each program maintained cases separately of each other

2022

Chorus added support for retaining **client data across multiple programs**

2023

Chorus launched **closed loop referrals and linkages** for Crisis Services

Unified crisis care continuum and field team support

Seamless crisis coordination to improve real-time coordination.



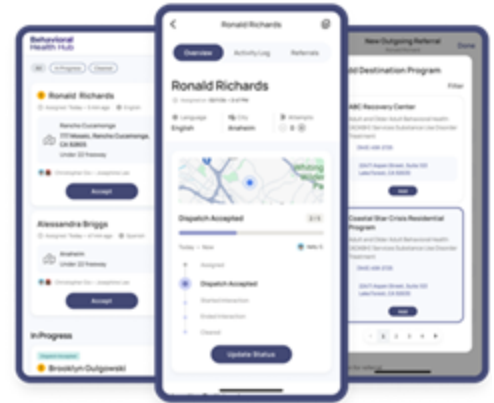
Streamline Intake

Easily track all crisis cases, statuses and details in one place.



Enhance dispatch

Improve coordination between dispatch and responders, with up-to-date case and clinician location.



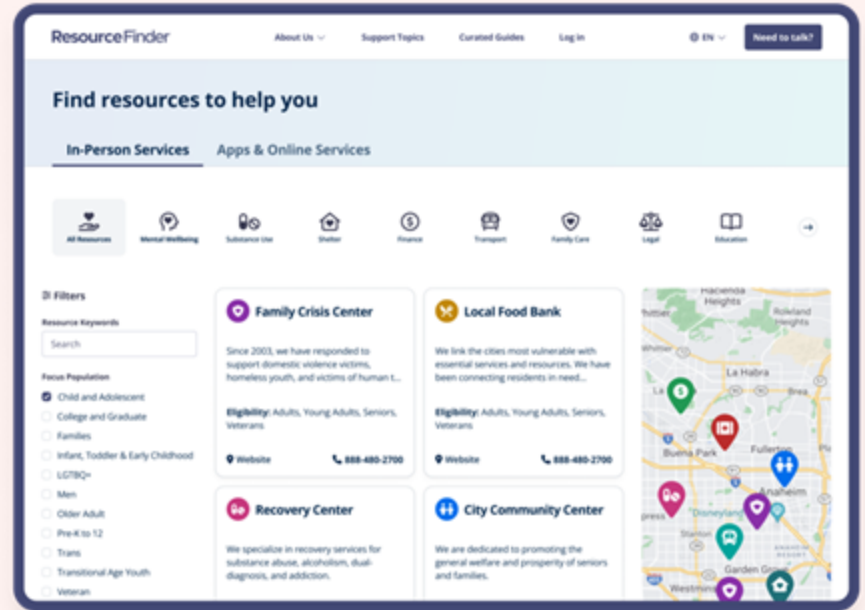
Empower complete care

Enable clinicians in the field to provide status updates and documentation

Resource finder

Help people find and connect with the resources they need.

- ✦ Support closed-loop referrals and tracking
- ✦ From social services to emergency assistance, help community members find local solutions in their preferred language
- ✦ Tailor the resources and resource guides to match the needs of your specific community
- ✦ Support users in real-time with optional chat functionality



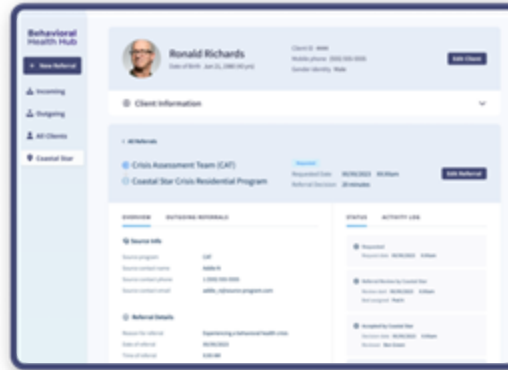
Bed management

Support referrals, review/approvals, bed assignment, and outcomes tracking.



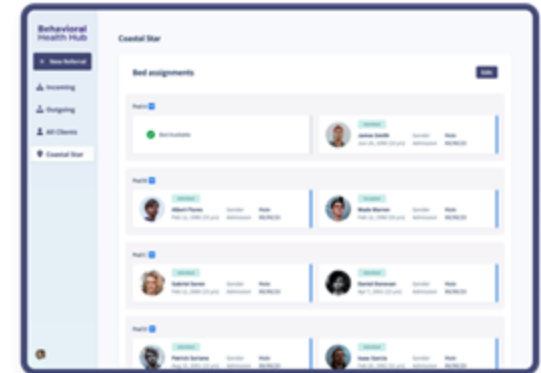
Alleviate admin burden

Reduce double entry & provide a centralized dashboard for up-to-date information and availability.



Improve visibility & identify gaps

Track client status and measure program effectiveness to enhance resource allocation.



Expedite patient care

View critical information and assign rooms to seamlessly connect clients with the appropriate care.

Universal referral system

◆ Improve care coordination

Prioritize action with a centralized dashboard to easily receive, track, and manage referrals.

◆ Closed-loop referrals and tracking

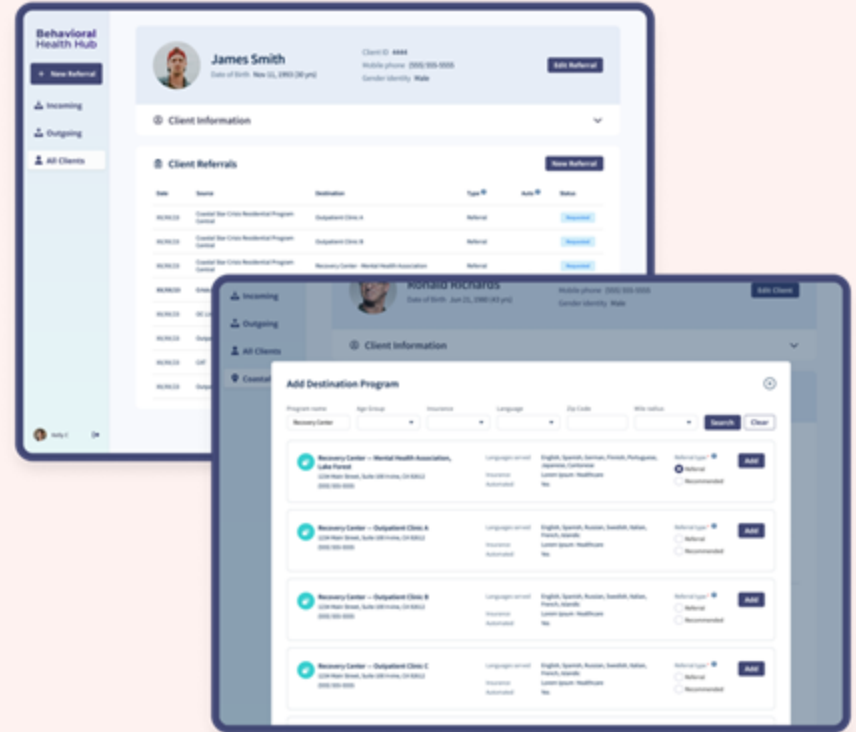
Ensure clients receive timely and appropriate care through real-time status updates.

◆ Gain visibility across your system

Quickly and securely connect clients to appropriate care across diverse programs.

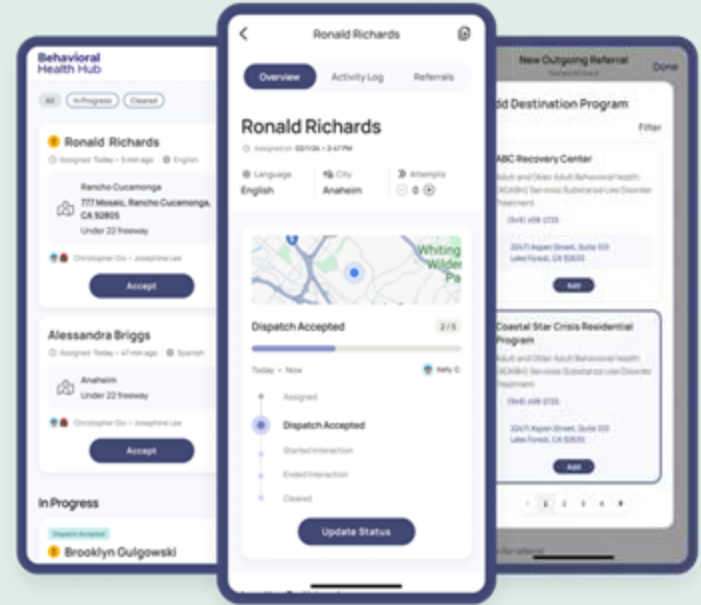
◆ Identify service gaps and opportunities

Leverage data to inform resource allocation and program development decisions.

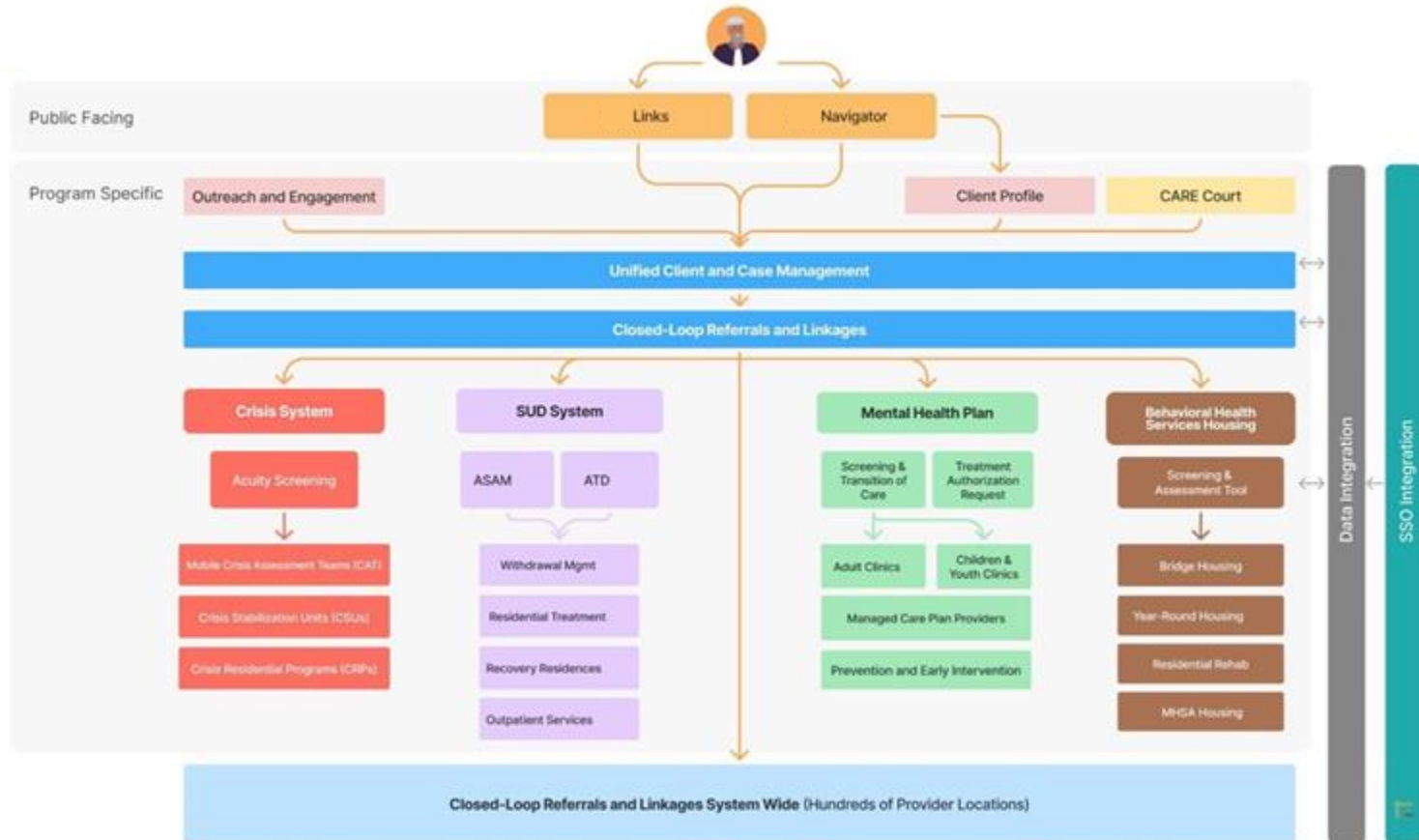


Importance of supporting mobile teams in the field

- ✦ **Empower coordinated case management** with Real-time dispatch board.
- ✦ **Provide up-to-date information to inform decisioning** with mobile experience for field providers.
- ✦ **Ensure responder safety** with location-based tracking.



Resulting in System Transformation



Key learnings for organizational change



A unified system is critical to support a comprehensive view of complex health systems



Program coordination supports improved communication and patient care



Co-creation with a flexible technology platform ensures reflective tools that evolve with needs over time

Impact

The digital system created in partnership with the county reflected their unique system needs, for more effective care delivery and uptake



3.1+ Million

Community Members Served

Empowering responders & providers, as well as self-service via resource & warmlines.



150+

Providers & Community Based Orgs

Solutions developed via engagement were more reflective, inclusive, and widely adopted.



1,500
Staff rolling out



8.6K+
Referrals Made



5.3K+
Resources Recommended

Impact on stakeholders



“I’m not tech savvy, and this felt user friendly.”

— Behavioral Health Program Manager

“I’m thankful Chorus took the time to come and see what we’re doing — to build tools that meet our needs.”

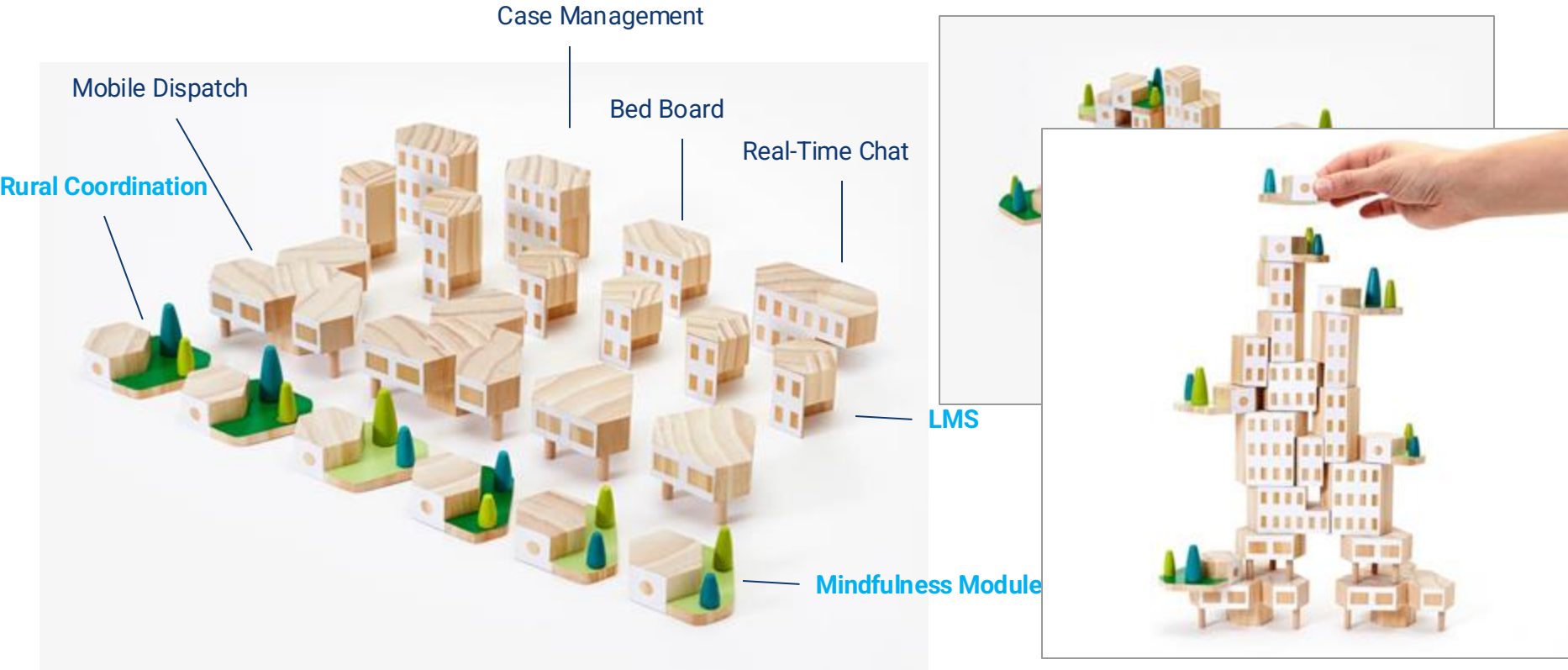
— Contact Center Supervisor

“Chorus made our lives easier and boosted morale. I hated the previous tool... it was made by someone who didn’t get crisis work.”

— Crisis Clinician

Implications for the future

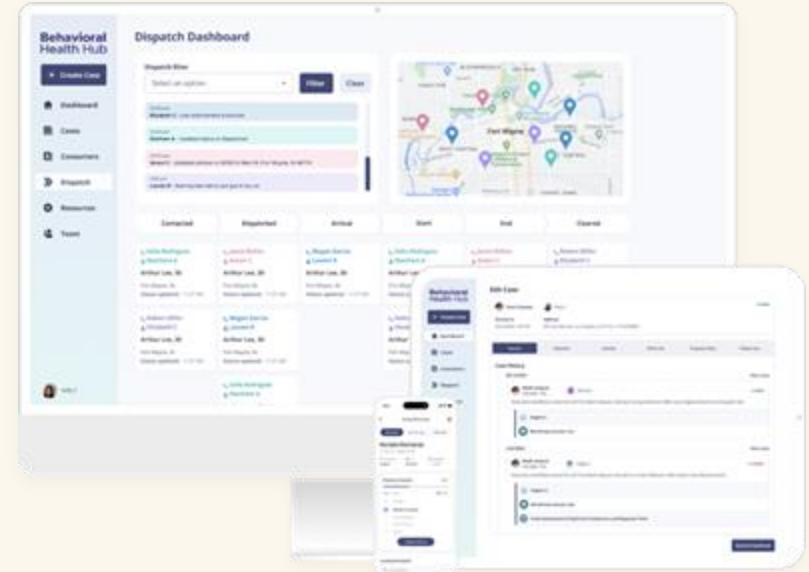
A participatory, Building Block Approach



A statewide strategy to coordinate crisis care across orgs and regions

Working with providers across the state for:

- Unified data across multiple EHRs to improve information sharing
- Customized solutions that balance state-wide standardization and regional needs
- Real-time visibility statewide to streamline resource management and program reporting



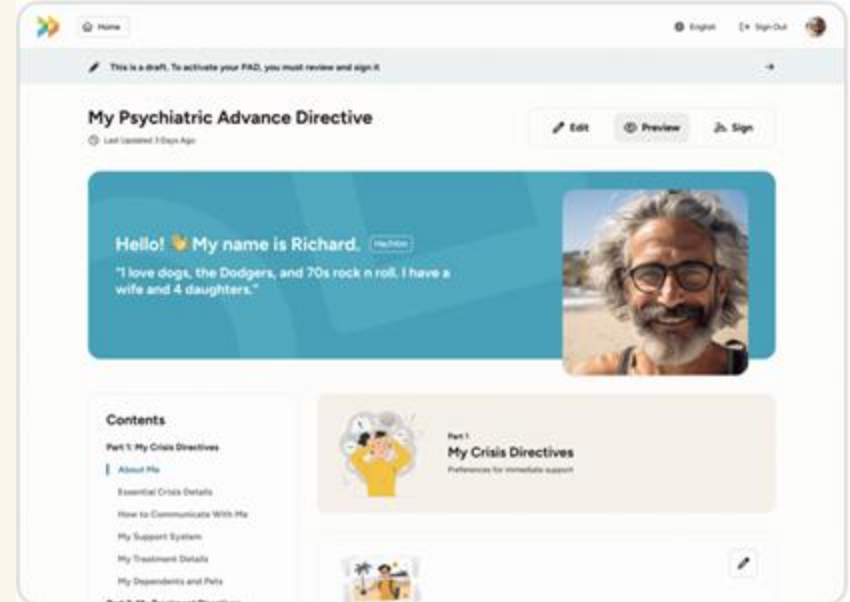
**Missouri Behavioral Health Council &
Missouri Department of Mental Health**

Digital Psychiatric Advance Directives



Multi-County Collaborative supporting:

- Peer informed co-creation of a digital platform to support Psychiatric Advance Directives
- Real-time availability for emergency, crisis and care providers
- Supporting individual preferences and background to improve outcomes



Summary

- Best practices for system change include engaging stakeholders meaningfully throughout
- Technology and system change can be thought of together and in context of many factors
- Platform approaches allow for bringing down technical barriers and offer an option for threading the needle between ‘building in house’ and ‘off-the-shelf’
- Iteration and continuous improvement are key to sustainable change



Discussion



Armen Arevian, MD PhD
CEO, Founder
armen@joinchorus.com

chorus
Chorus Innovations
www.joinchorus.com