

HOW SHOULD WE DEVELOP DATA AND TECHNOLOGY SYSTEMS FOR COMMUNITY CARE COORDINATION?



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MEET THE PRESENTERS



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LEARNING OBJECTIVES

1. Explore the differences between health information and information about community/social services.
2. Outline essential technical and data functions of community-led care coordination infrastructure that can bridge these differences.
3. Articulate the spectrum of technology tools that can be leveraged to support the aims of person-centered care.
4. Present real-world approaches to building this infrastructure via examples from San Diego and St. Louis.
5. Discuss how communities should incorporate data and technology that enables interoperability and equitable systems alignment.



DIFFERENCES BETWEEN HEALTH AND SOCIAL SERVICE INFORMATION



A Very Oversimplified Overview of Healthcare Data Systems



Patient



Provider



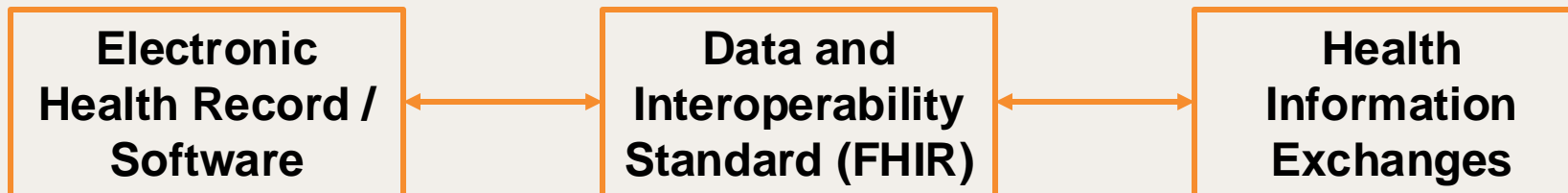
Clinic



System



Cross-System



A Very Oversimplified Overview of Social Service Data Systems



Person



Family



Community



Program



Provider



Center



System?



Cross-System?

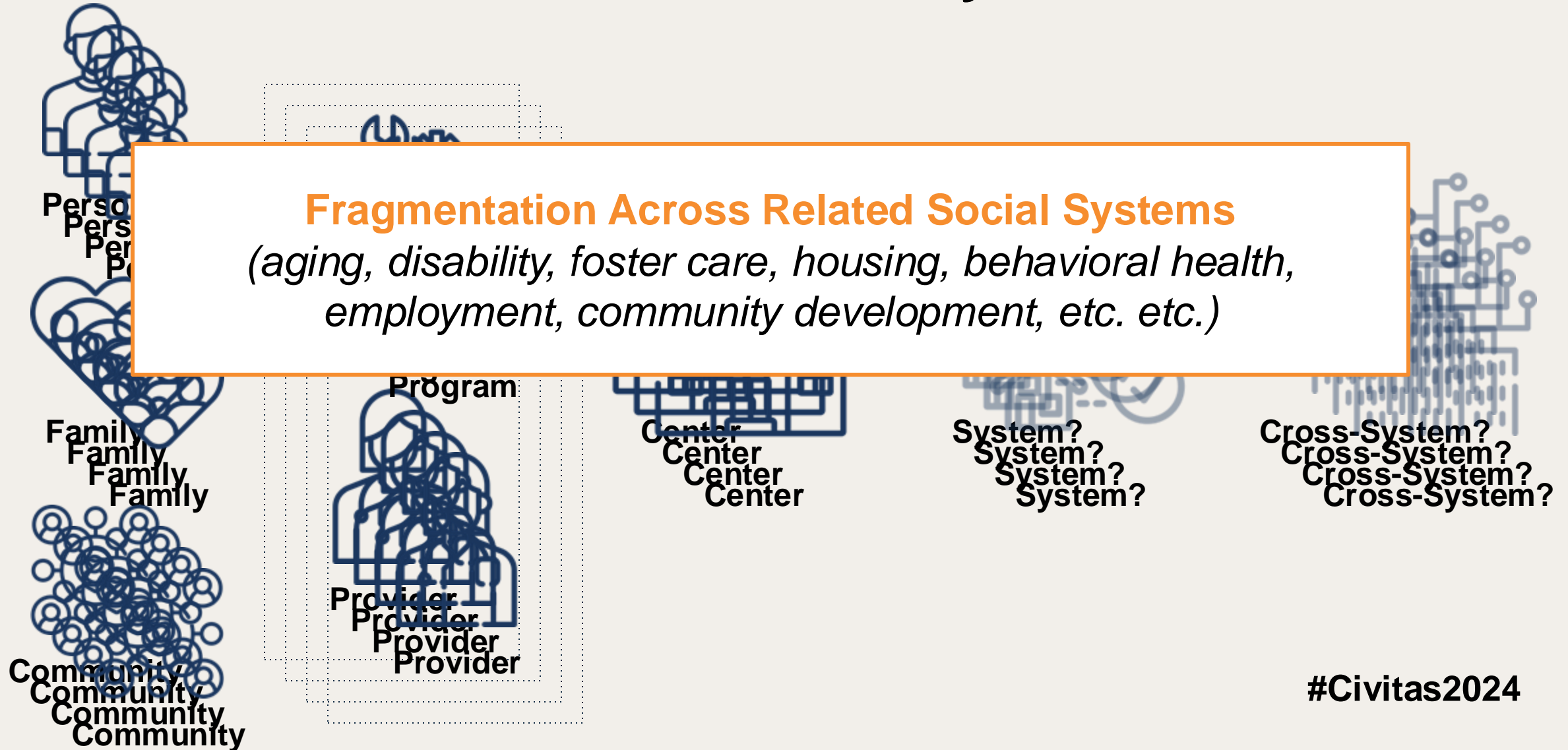
Client Database
/ Software

Common Reporting
Requirements
(& Systems)



A Very Oversimplified Overview of Social Service Data Systems

Fragmentation Across Related Social Systems
(aging, disability, foster care, housing, behavioral health, employment, community development, etc. etc.)



Key Differences Between Health and Social Service Data

Healthcare Data	Social Service Data
Common Funding Sources/Structure	Diversity of Funding Sources
Clinically-Centered Interventions	Person and Community Centered
Largely Mature Data Systems	Scattered Data / Data Systems
Interoperability Push / FHIR	Interoperability? (Few Standards)
Robust Communities of Practice	Underfunded Data Capacity

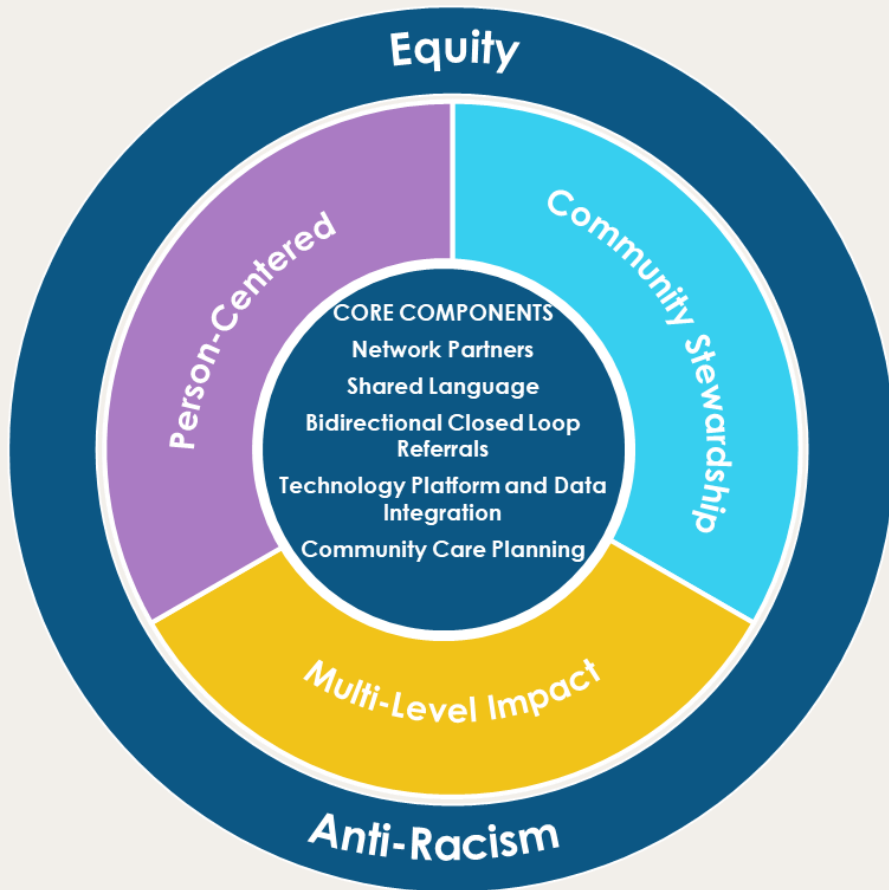
Where do HIEs play a role?

- Vast experience sharing records across health systems
- Existing infrastructure to leverage: record matching, interoperability, and complex analytics
- Increasing momentum to broaden HIE reach and impact with Health Data Utility transitions
- However: shifting into care coordination outside of the clinical environment is complex and murky

Community Information Exchanges?

- Growing movement to connect health and social care
- Goals push beyond record exchange:
 - **Informed care**
 - Shaped **by communities**
 - **Equal emphasis** on health and community care
 - Requirement that technology can respond to/manage the **diversity of multiple service sectors** and community priorities
 - Need for technology to be scaled over time to account for **interlocking systems and datasets**
 - Can't be "one tool to rule them all" (must **go beyond referrals**)

What is a Community Information Exchange (CIE)?



A **community-governed infrastructure** that enables **information** to be effectively and responsibly **shared among many organizations**, using different, **interoperable** technologies, in support of **holistic coordination of care and equitable systems change**.

Tenets

- Equity
- Anti-Racism

Fundamental Approaches

- Person-Centered
- Community Stewardship
- Multi-Level Impact

Core Components

- Network of Partners
- Shared Language
- Bidirectional Closed Loop Referrals
- Technology Platform & Data Integration
- Community Care Planning

Multi-Level Impact

Macro Impact Examples:

- Collective aggregate community data that is provided by community members
- Wholistic data is collected, understanding connection between health and social

Resource: [Housing Policy Brief](#)

Mezzo Impact Examples:

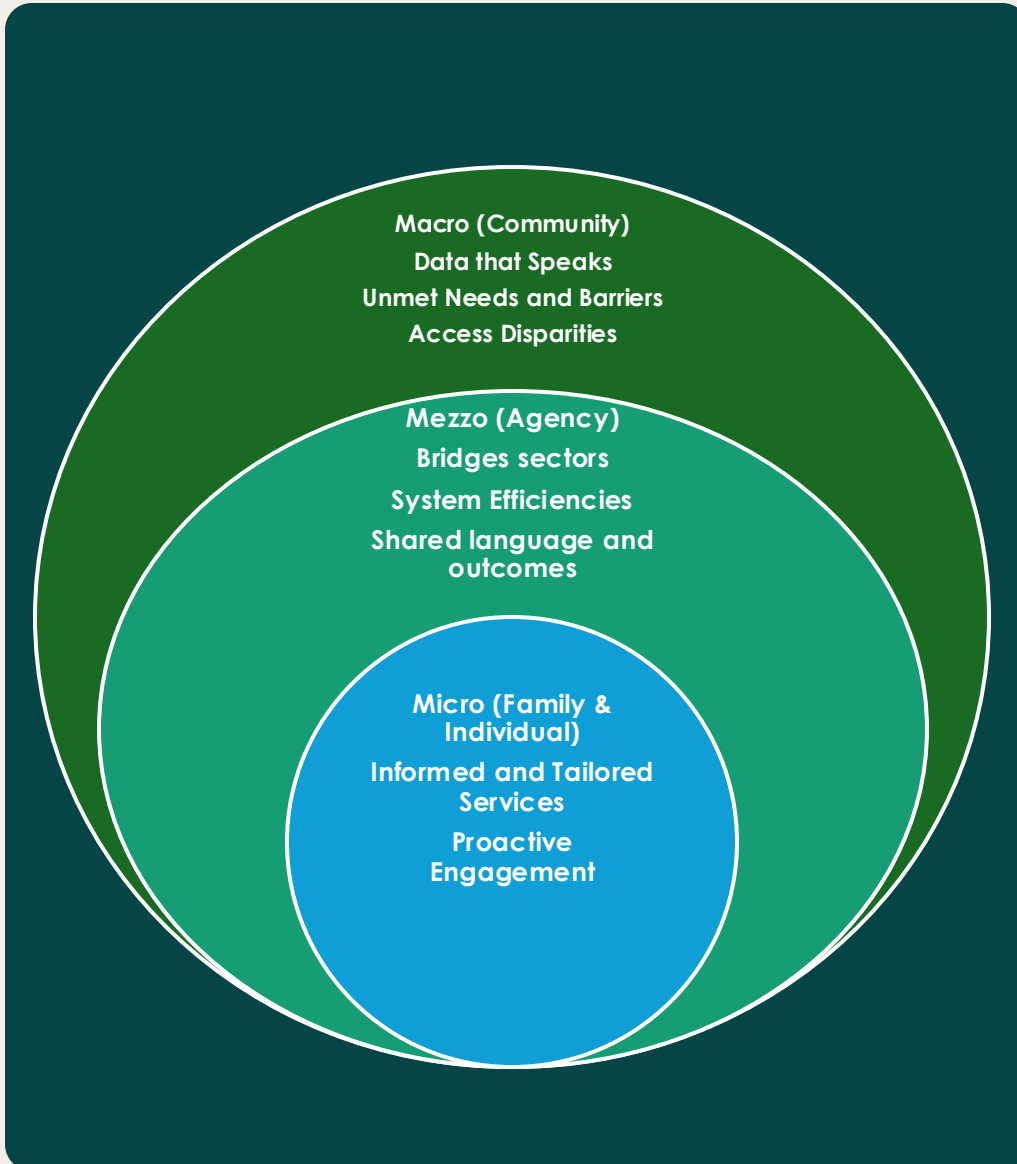
- Breaking down of siloed data systems
- Ability to search patients/members to see historical use of social services and closed loop referrals
- Shared screening or prioritization of resources and care team members receive alerts to be proactive or responsive

Resource: [COVID-19 Response](#)

Micro Impact Examples:

- Families don't have to retell their stories or trauma repeatedly
- Agencies can reach out directly, instead of adding additional work on the person to follow-up with the agencies for support
- Care gets coordinated within the individual having to remember who they are working with

Example Cohorts: [Homeless](#), [Older Adult](#)





Primary CIE Uses



Searching patients/members to see historical use of social services

- Tailor services accordingly
- Reach out to existing care team member or agency for support



Shared screening or prioritization of resources

- Example – Homeless Prevention Resources
- Prioritize access to services (history or acuity)



Make referrals to external community and healthcare organizations

- Ability to track referrals to partners
- Send client profile directly to agency (outcomes of referral)



Receive alerts to be proactive or response

- Join as care team member and receive alerts

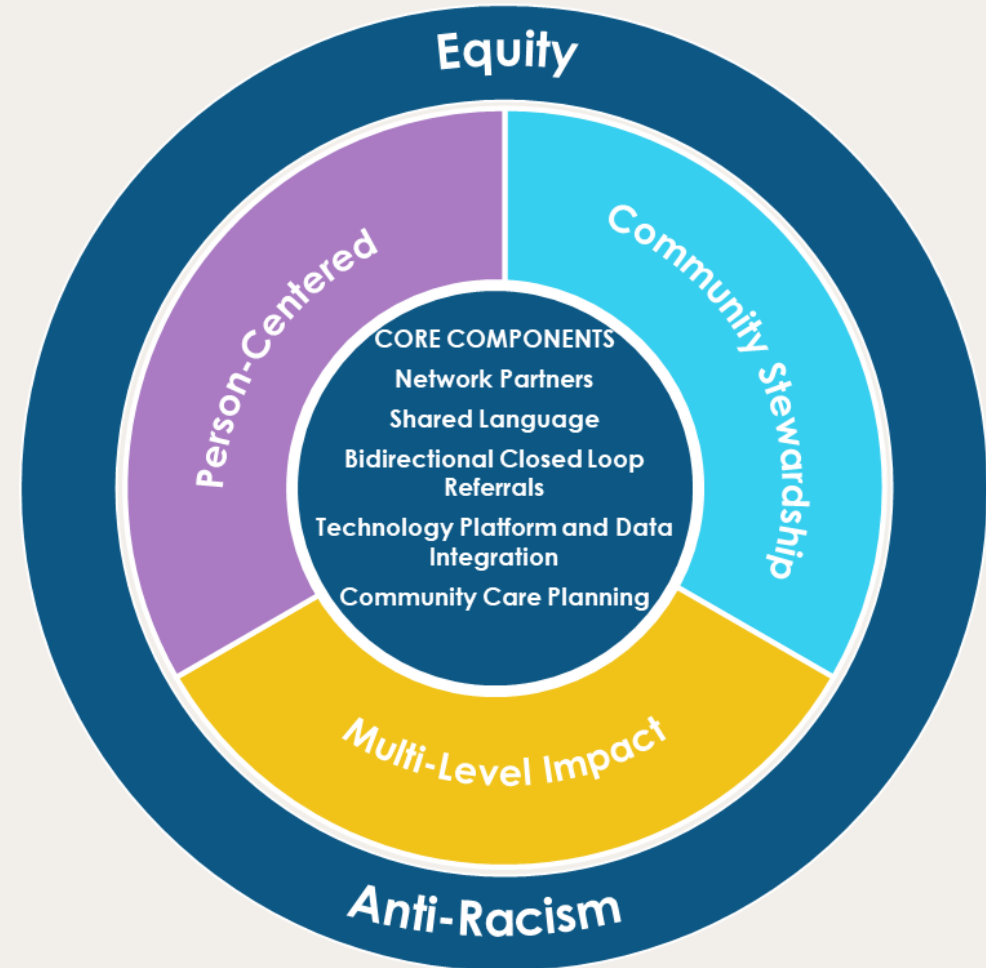
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What Does Our Community Want?

- Who are we trying to serve?
- Where are we trying to serve? (geographic region, city, county, state)
- What problem do we want to address?
- What existing resources are available?
- What technology and data infrastructure already exists?
- Who do we need to exchange data with?
- Is there alignment on the definition and technical requirements of a Community Information Exchange?
- Is there an alignment in purpose and vision for how infrastructure will track services and care to better serve people/communities?

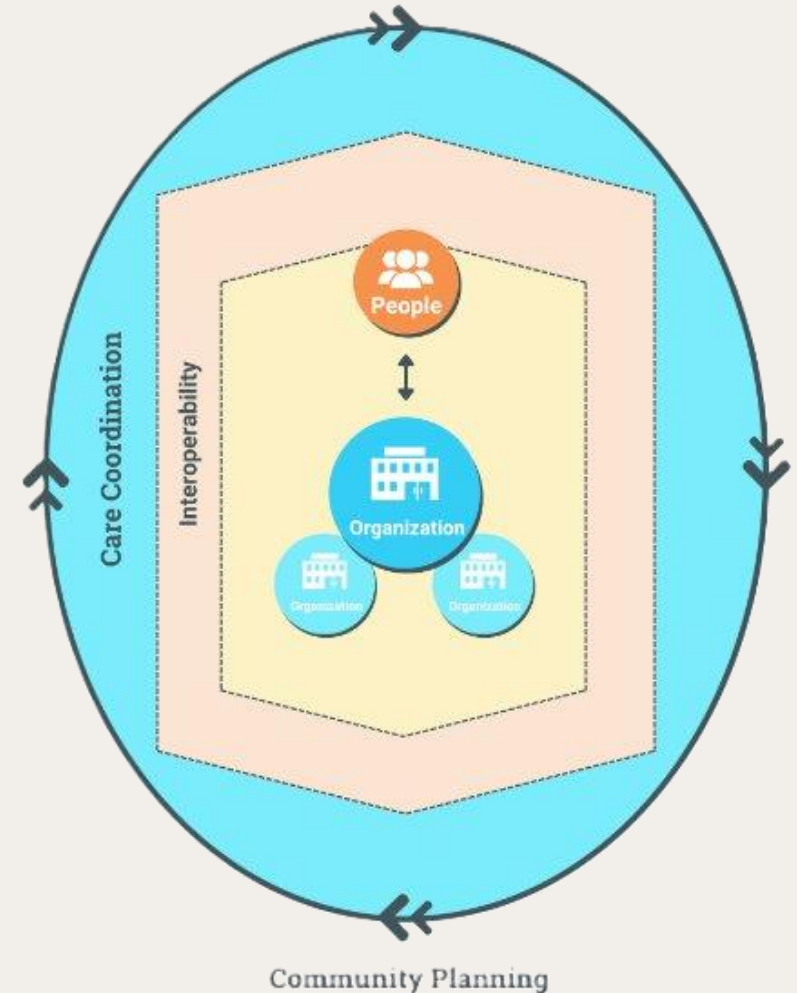
Technology + Data for CIEs

1. People ("Clients")
2. Organizations
3. Care Coordination
4. Interoperability
5. Community Planning



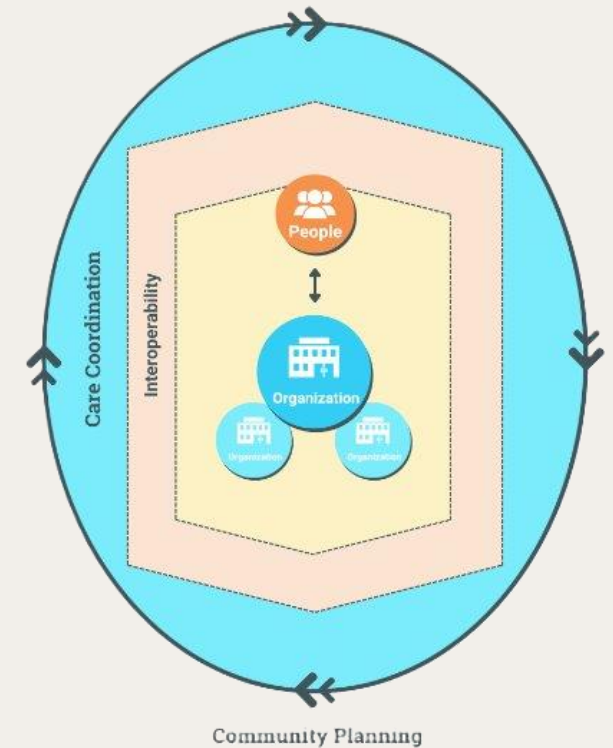
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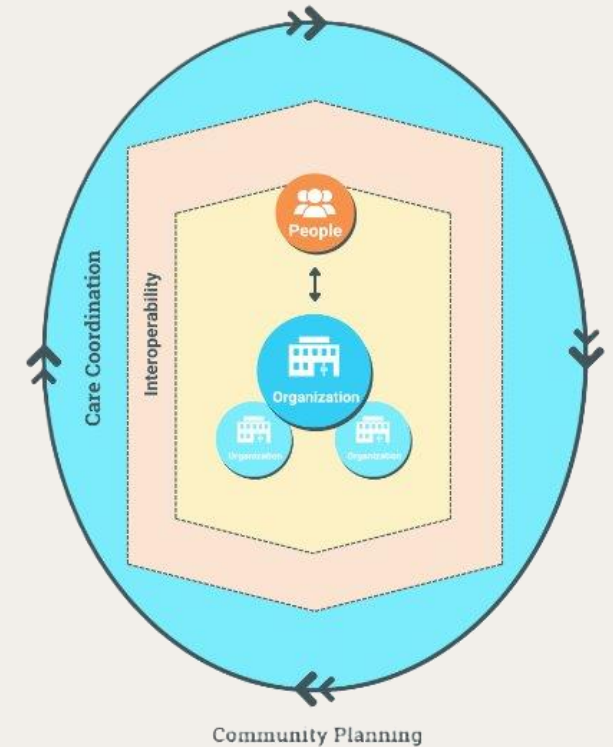
1. People

CIE Component in Practice	Data Elements
<ul style="list-style-type: none"> • Person identifying a priority, goal, or need — either directly or through organization • Connection to organization(s) that may be able to provide needed services • Understanding of the referral process and status • Ability to access information • Ability to consent to data sharing (and change consent) 	<ul style="list-style-type: none"> • “Client data”: Identity, Context, Activities, Consent • Longitudinal record/linkage
	<p style="text-align: center;">Technology Supports</p> <ul style="list-style-type: none"> • Master Patient Index (MPI) • Electronic Health Record or Case Management System • Referral platforms • Consent Management • Patient/Client Portal



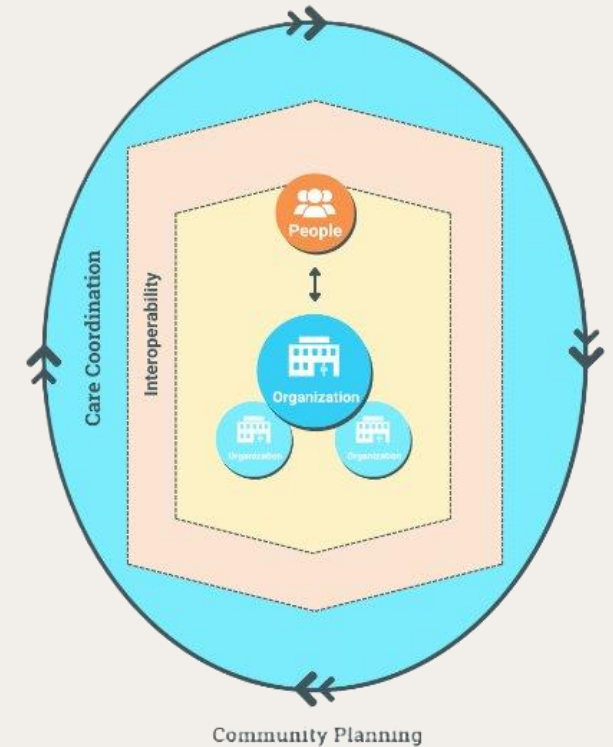
2. Organizations

CIE Component in Practice	Data Elements
<ul style="list-style-type: none"> Information shared about programs/services provided ("resource data") Organization sending or receiving a referral Management of client information, likely across many programs/services Reporting and data sharing requirements from multiple funders/collaboratives Balances client needs with funder/org incentives 	<ul style="list-style-type: none"> Resource data about services provided by organizations Collection of client data Internal record/linkage of services provided Often target population/ domain/region specific orientation
	<h3>Technology Supports</h3>
	<ul style="list-style-type: none"> EHR / Case Management System Resource directory platforms Referral platforms Use of intermediary systems (CIE, HMIS, etc.) Reporting & analysis



3. Care Coordination

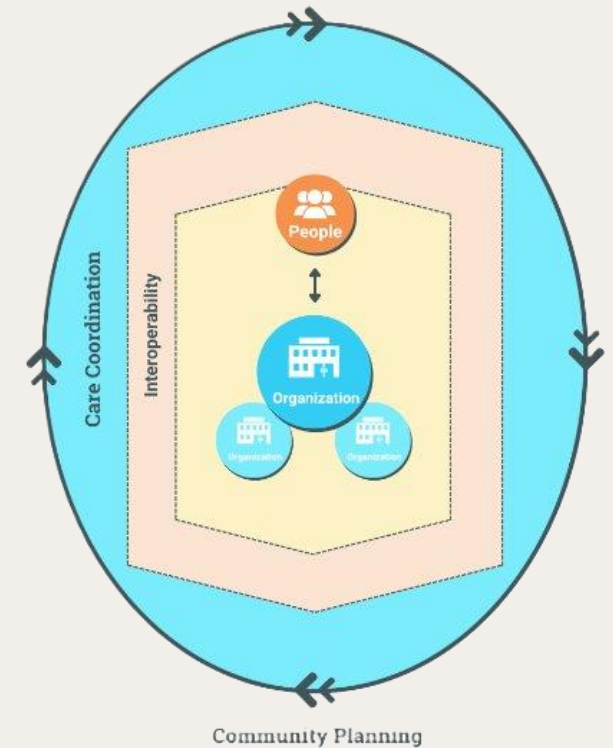
CIE Component in Practice	Data Elements
<ul style="list-style-type: none"> • Strategy for how to engage a person about their priorities/ needs, often based on an assessment, screening, or goal setting with a provider • Likely connects to multiple organizations and services, within + across sectors (health, housing) • Likely a longer-term process beyond one unique referral • Appropriate/ethical org access to client information • Appropriate/ethical client access to org referral/service record 	<ul style="list-style-type: none"> • Client data across organizations • Requires connecting clients to resource data over time • Program outcomes • Longitudinal record/linkage
	<h3>Technology Supports</h3>
	<ul style="list-style-type: none"> • EHR / Case Management System • Resource directory platforms • Referral platforms • Use of intermediary systems (CIE, HMIS, etc.) • Eligibility Engine



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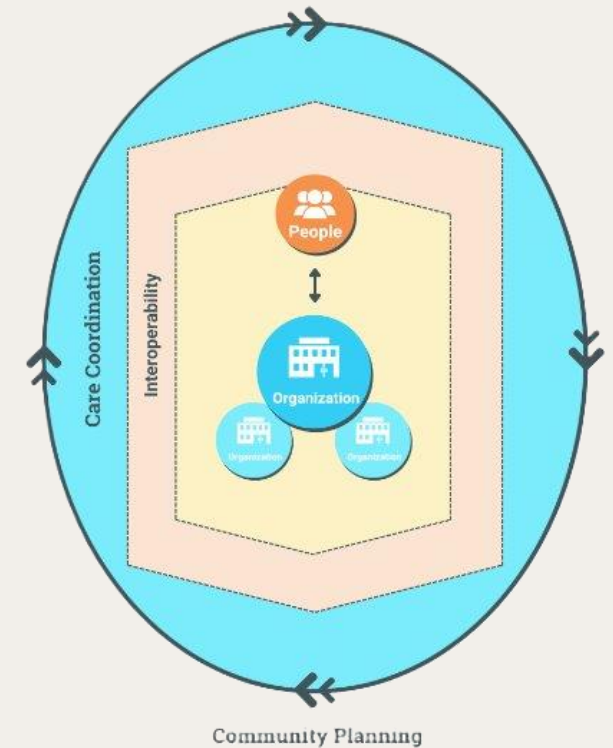
4. Interoperability

CIE Component in Practice	Data Elements
<ul style="list-style-type: none"> • How a person's information in different formats and sets is shared from system to system during care coordination • Requires clear governance and ethical/equitable rules • Baseline level of standardization across similar data elements • Baseline level of connectivity across adjacent tech platforms • Ability to change/adapt as the overall system changes • Enables alignment across systems of care over time, intersectional analysis of people/outcomes 	<ul style="list-style-type: none"> • Client data, standards, packages/protocols, resource alignment – across organizations • Record matching • Process for addressing conflicts/duplication
	<p data-bbox="1047 886 1811 992" style="text-align: center;">Technology Supports</p> <ul style="list-style-type: none"> • Application Programming Interfaces (APIs) • Extract, Transform, Load (ETL) • Data standards (FHIR+) • Middleware/data exchange



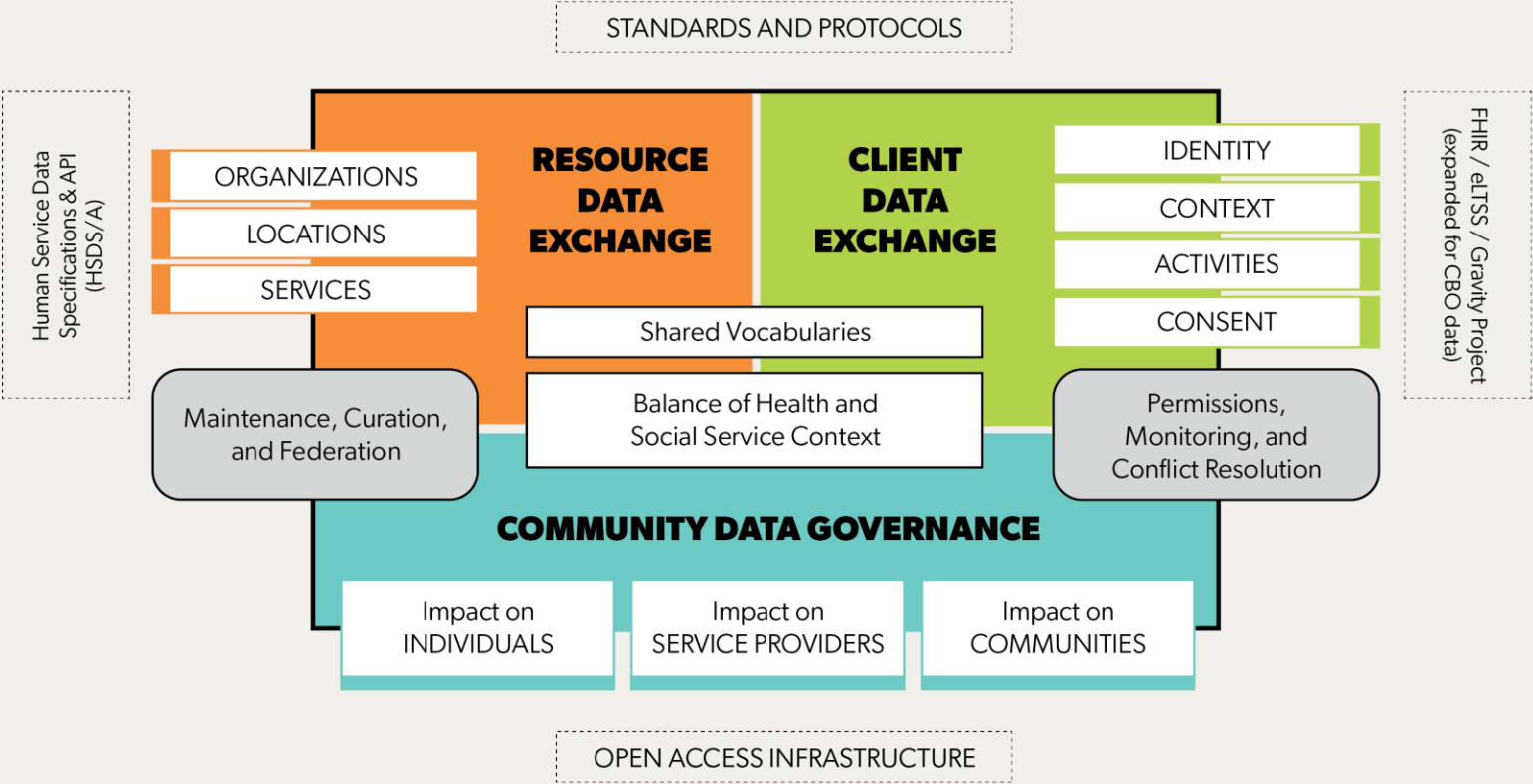
5. Community Planning

CIE Component in Practice	Data Elements
<ul style="list-style-type: none"> • How a community uses information collected within a CIE to improve systems of care • Embedded within CIE governance structures • Requires connecting data across multiple platforms and initiatives • Produces gap analysis, resource mapping, predictive models, etc. • Should involve meaningful participation from people seeking services to interpret data and guide action 	<ul style="list-style-type: none"> • Reporting and analytics across data sources • De-identified, disaggregated by race and other demographics • Alignment to existing datasets (Census, CHNA/CHA, etc.) • Ways to connect records longitudinally
	<h3>Technology Supports</h3>
	<ul style="list-style-type: none"> • Dashboards/visualization tools • Incorporation of stories/experiences about CIE



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Primary CIE Components (Another Model)



(Sorenson & Bloom, 2021)

bit.ly/socialcaredatapdf

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REAL WORLD APPLICATION

San Diego Community Information Exchange (CIE)

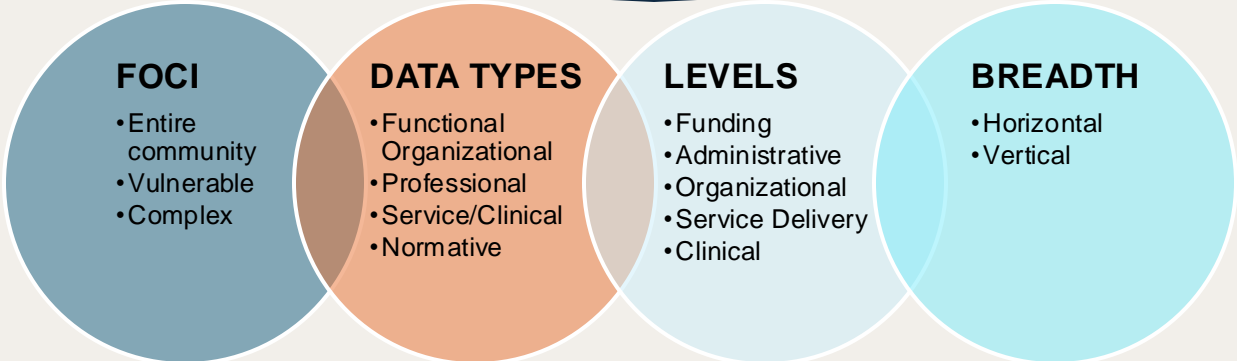


Spectrum of Interoperability

Degree of Information Exchange and Utilization

Buy-In and Community Engagement	Shared Record	Referrals	Data Sharing	Translated Language	System Integrated Record	Shared Care Plan	Community Care Planning
<ul style="list-style-type: none"> Shared vision and mission of the network or collective approach 	<ul style="list-style-type: none"> Agency-specific or system-specific person-centered tracking 	<ul style="list-style-type: none"> Closed loop referrals Tracking services requested by individuals 	<ul style="list-style-type: none"> Bidirectional flow of data Data integration between system platforms within the community 	<ul style="list-style-type: none"> Collective language across sectors 	<ul style="list-style-type: none"> Multiple sources of data integrated into one record Multiple agencies use the CIE to inform care or interventions 	<ul style="list-style-type: none"> Care team members use CIE to share individual care plan 	<ul style="list-style-type: none"> Organizations are sharing, contributing and collecting Collective data and metrics are incorporated and leveraged

Additional Considerations for Interoperability



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SAN DIEGO

- 5th largest U.S. County
- 18 municipalities
- 18 tribal nations
- 42 school districts
- Region is very diverse:
 - Over 100 languages
 - Large military presence
 - Largest refugee resettlement site in CA
 - Busiest international border crossing in the world



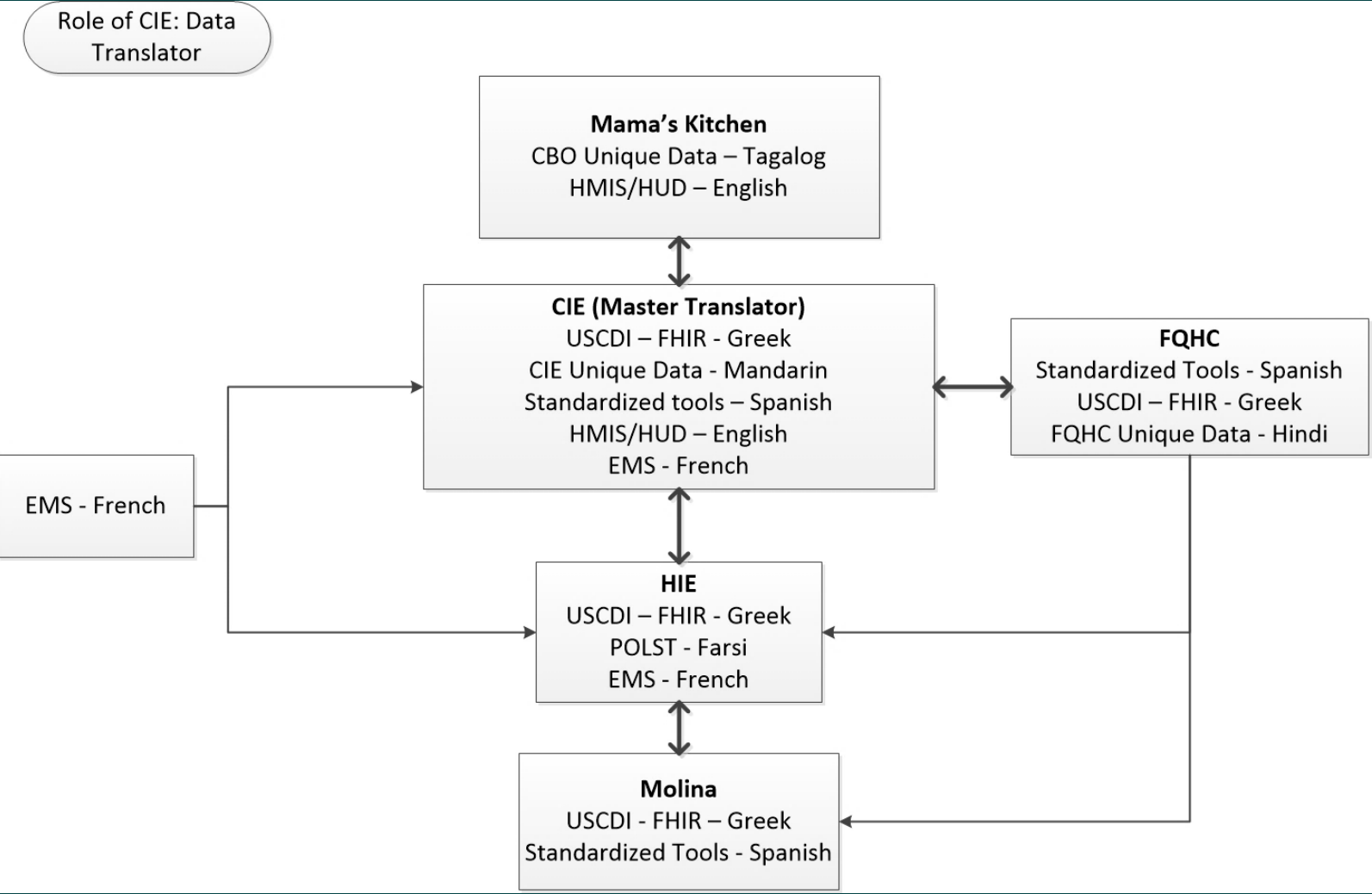
Types of Data in CIE San Diego

- Client/Patient Demographics
- Standardized Screening Tools
- Strengths-based screening tools
- Comprehensive assessments by Domain -Nature and immediacy of situation, barriers and supports in play, a person's knowledge and ability to utilize resources
- Alerts
- Program Enrollments
- Referral sent, referral status, and referral outcomes (both hand off and client engagement), associated z-codes
- Care Teams
- ICD-10 (Z-codes)
- **Relationships** - *Household structures*
- **Eligibilities**
- **Note and Attachments**
- **Program Screening tools**
- **Client Data Source** - *Who is contributing to this records*
- **Field-level tracked history**
- **Services, with encoded service descriptions** (*211 LA Taxonomy*)
- **Real-time "Bed count" availability** (*CaAIM Recuperative Care*)

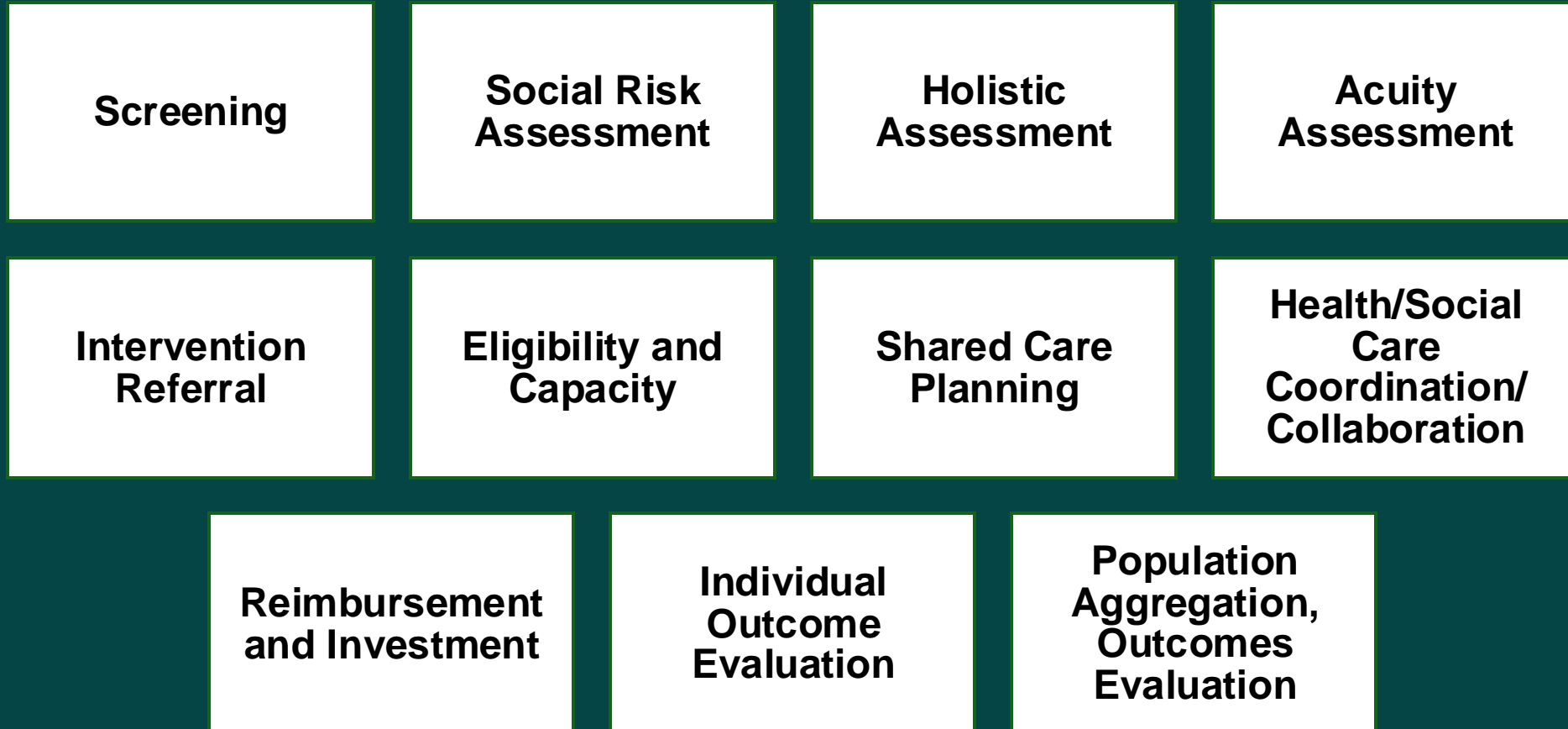
Examples of CIE Data Sources

- **Social Service Providers**
 - Interfaith Community Services
 - Father Joe's Villages
 - San Diego Workforce Partnership
 - MAAC
 - San Diego Food Bank
- **Homeless Management Information System (RTFH)**
- **EMS Alerts (Cities)**
- **Health Plans**
 - Blue Shield CA Promise Health
 - Health Net
 - Molina
- **Hospitals**
 - Sharp Healthcare
 - Kaiser Permanente
- **Federally Qualified Health Centers**
 - San Ysidro Health
 - Family Health Centers

CIE as a Google Translate



Data Types, Analysis, and Functions





CIE Interoperability

Technology Platform and Data Integration

CIE: Local Data Intermediary

- Risk indicators/risk populations coded to related to corollary resources provided by CBOs
- Allows for CBO customizability to align with FHIR data standards

ETL (Intelligent Informatica Cloud)

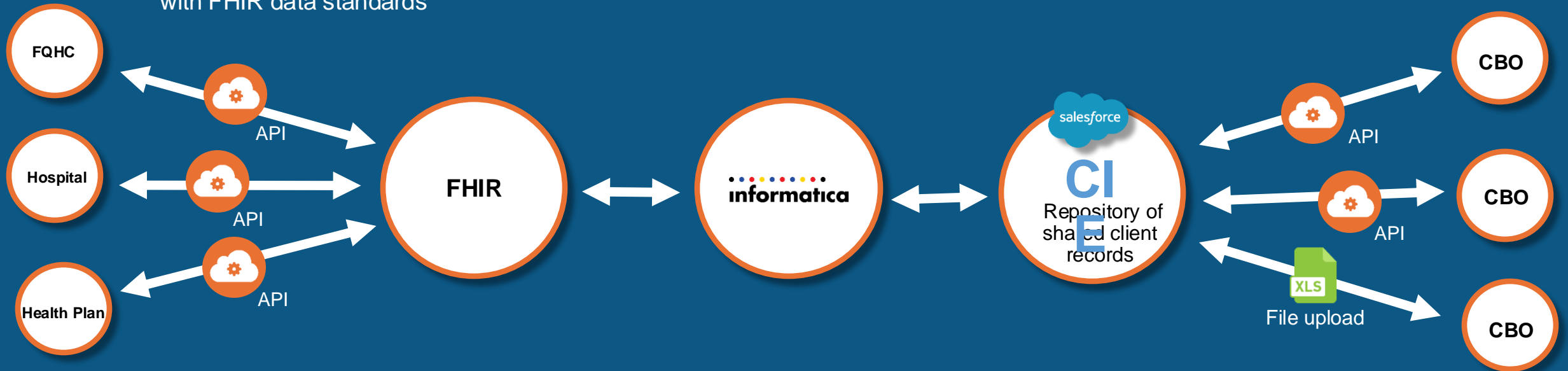
Extract Transform Load

1. Reads data from a database
2. Converts the data for the new database
3. Loads into the new database

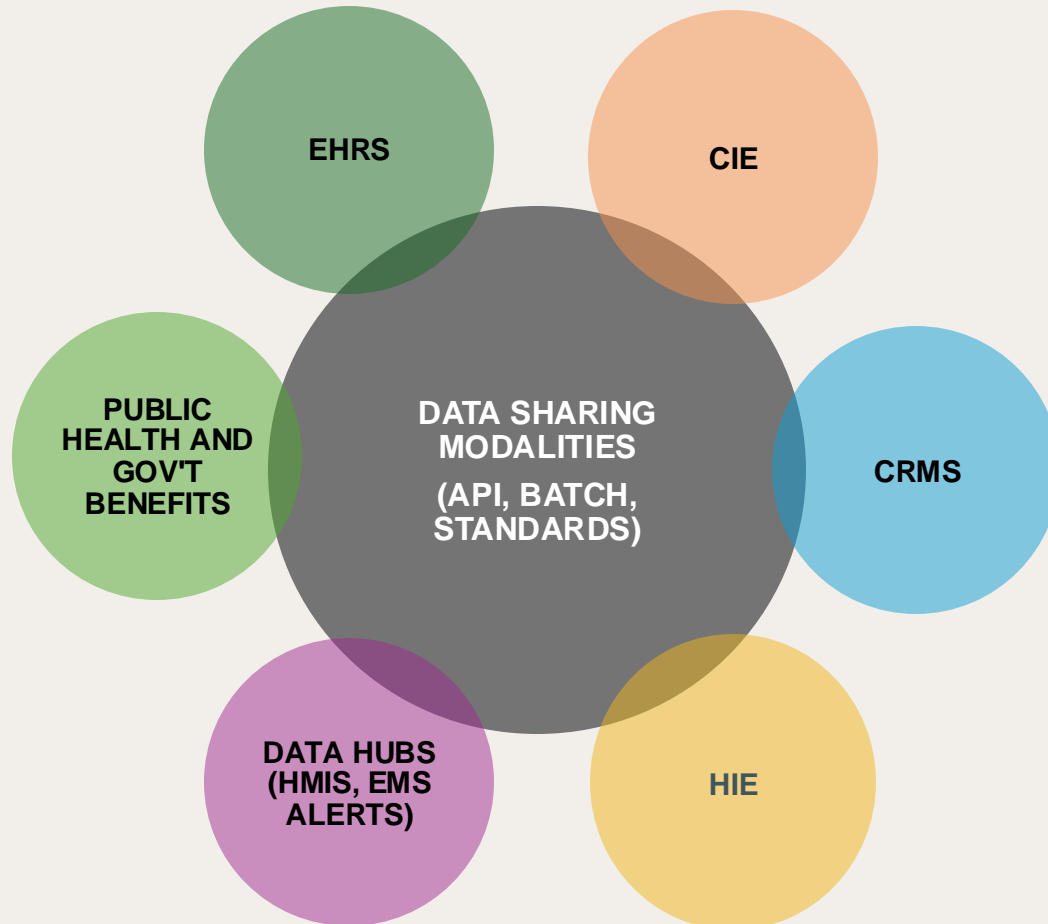
MDM – Installed on top of Salesforce (created by Informatica)

Master Data Management

- Detects and merges duplicate records
- Ensures the accuracy, completeness, and consistency of multiple domains of enterprise data



Interplay between Technology Ecosystem and other Variables



Variables for Consideration

- Consent Management
 - Privacy Laws
 - Client Choice
 - Data Source
 - Data Content
 - Redisclosure purposes
- Role-Based Permissions
- Data messaging formats
 - FHIR
 - X12
 - HL7v2
 - JSON



REAL WORLD APPLICATION

SAINT LOUIS COMMUNITY INFORMATION
EXCHANGE





GREATER ST. LOUIS
Community
Information
Exchange

What is the St. Louis Community Information Exchange?

The St. Louis Community Information Exchange (CIE) is a network of regional partners focused on improving the health and well-being of residents and neighbors in the metro St. Louis region.

Using a shared technology platform, partners will be able to share client information and virtually coordinate efforts to maximize resources in the delivery of holistic, person-centered care — moving families from crisis to long term stability.

Need



Infrastructure



Connections



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Who's Involved?



Backbones



Overall Lead



Data & Tech



Healthcare

Major Funders



Technology Partners



Network Partners



Timeline: St. Louis CIE, 2018 to Present

- 2018: United Way 2-1-1 convenes over 100 organizations to kick off CIE development inspired by San Diego CIE
- 2018-2020: Interim Steering Committee and backbones formed, developed tech RFP
- March 2020: Pandemic hits, major funder pays for off-the-shelf system for referral management
- August 2020: CIE launches in St. Louis using Unite Us, widely used to manage rent/utility assistance
- 2021-2023: Major STL health systems adopt Unite Us as referral platforms, slower adoption by CBOs
- 2024: CIE/United Way elevates use of 2-1-1 and connected technologies for holistic care coordination across health and social services

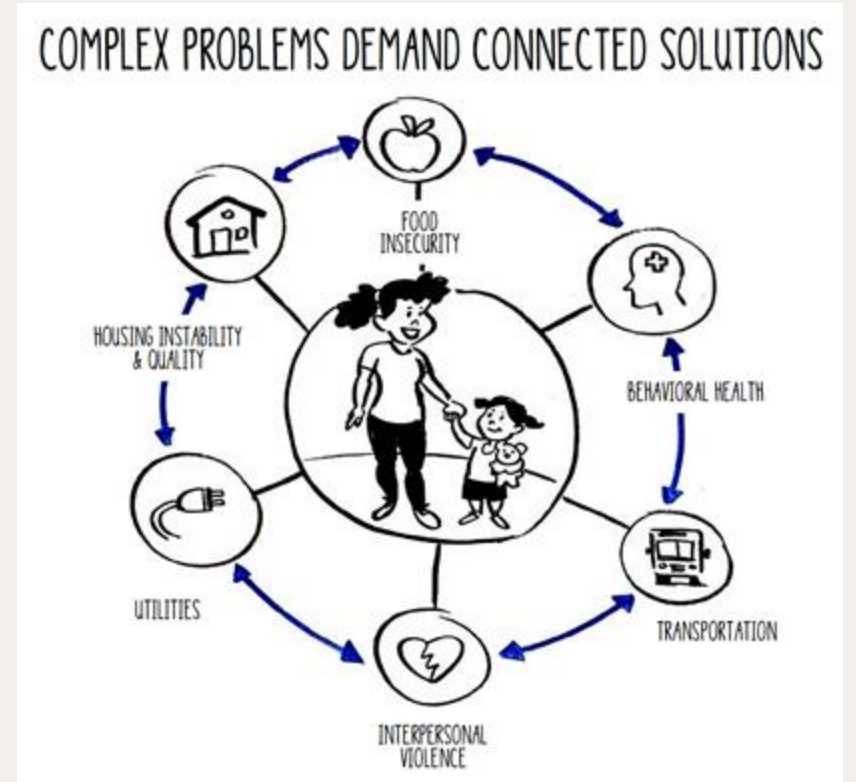


Image from 2018 Kickoff Session

MAJOR DATA PLATFORMS USED FOR REFERRAL MANAGEMENT

- 211: 76%
- Unite Us: 51%
- Behavioral Health Response: 42%
- Get Help: 13%
- HMIS (WellSky): 11%
- HMIS (CaseWorthy): 11%
- AgingIS: 10%
- REDCap: 9%
- findhelp: 9%

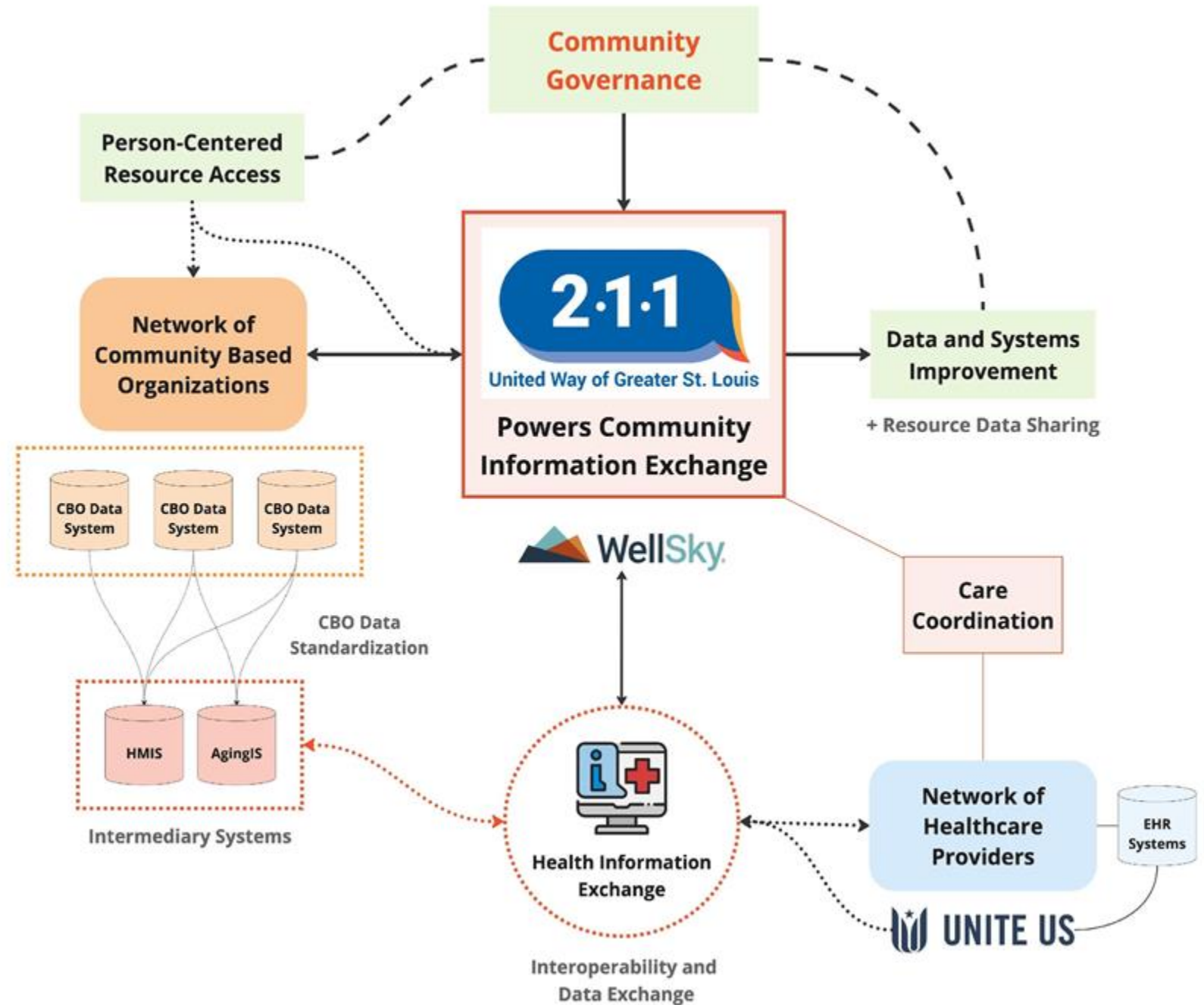
- Other: Direct referrals, early childhood services, paper/static directories

*St. Louis December 2023 Survey
(n=88)*

IF RESOURCES WERE NOT AN ISSUE, WHAT WOULD YOUR ORGANIZATION PRIORITIZE UPGRADING OR IMPROVING FOR REFERRAL MANAGEMENT SYSTEMS?

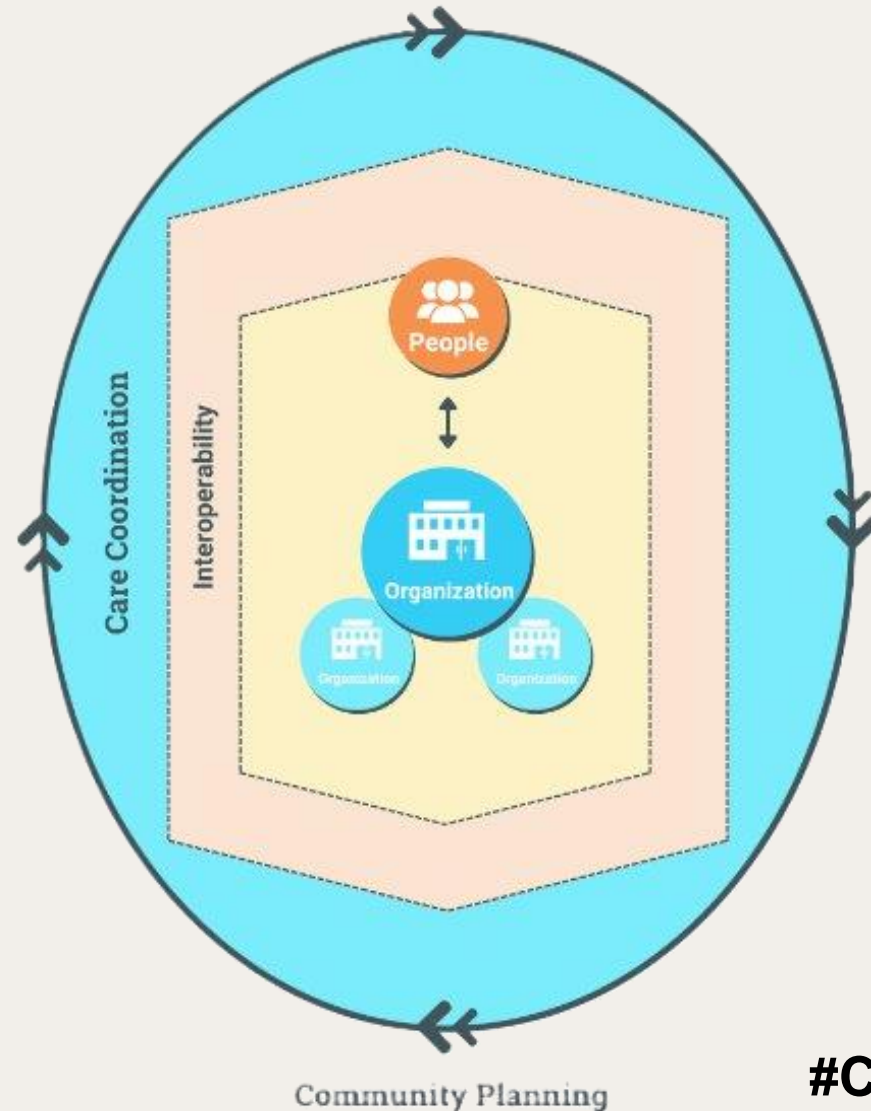
- Internal staff dedicated to referral management
- Direct integration / interoperability across referral systems
- Ensuring proper referrals are received (clear eligibility)
- Consistent referral process across all programs
- Less duplicate data entry
- Additional providers using referral system
- Reimbursement and/or capacity building for social care services
- Custom reporting
- *Not a priority / would focus elsewhere*

St. Louis Community Information Exchange 2.0 (In Progress)



Technology + Data for CIEs

1. People ("Clients")
2. Organizations
3. Care Coordination
4. Interoperability
5. Community Planning



Community Planning

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Discussion

- What does data and technology for community care coordination (via a CIE or otherwise) look like in your service area?
- If you could introduce one new feature to your system, what would it be?
- How would it change service delivery or enable the improvement of care systems?

Imagine

- If you could introduce one new feature to your system, what would it be?
- How would it change service delivery or enable system-change?





WHERE TO START



Big Picture Considerations

Remember that **technology is not a solution**, but it is a tool that can enable a healthy system when guided and supported effectively by a community

Focus on **essential and adaptable technical components** that can change as systems change (bells and whistles can be added later)

Leverage **existing technical infrastructure**, especially if already tied to community governance

Do's and Don'ts

DO	DON'T
Define technology needs with your community — and be open to changing technologies as needs change	Let technology vendors (or disconnected institutions) determine how your community manages the CIE
Control as much of your CIE technology as possible under your community governance structure (data, data elements decisions, data values, research, etc.)	Adopt technology that is not able to accommodate your community-led decisions (be as specific as possible about how technology changes are made)
Adopt technology that can incorporate your CIE's legal and community-lead ethical consent management infrastructure	Adopt a technology vendor that is not responsive to people seeking services, including consent management, data access, and other personal decisions
Adopt technology that has re-configurable data models and data sets	Believe that a technology alone can fix a disjointed system of care or care silos
Adopt or partner with technologies that enable flexible API configuration	Hyperfocus on one technology that promises to do it all — CIEs are always an ecosystem of tools that respond to community-based needs

Considerations for HIEs and HDUs

- How can core HIE functions (exchange, interoperability, aggregation) play a responsible role across fragmented and unstandardized social service data systems?
- Where do we need to invest (through HDU development or otherwise) in expanding the capacity of social service providers and data systems/standards?
- CIEs need to be strongly guided by community governance — how are you partnering with and responding to existing care coordination efforts?
- Where can your technology solutions lead — and where do they need to play a secondary/supporting role?



OPEN Q&A



THANK YOU



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Paul Sorenson

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Wednesday, October 16, 2024



CHECK OUT OUR AGENDA!

SCAN

