



Enabling Caring Communities – Longmont, CO

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With thanks to:

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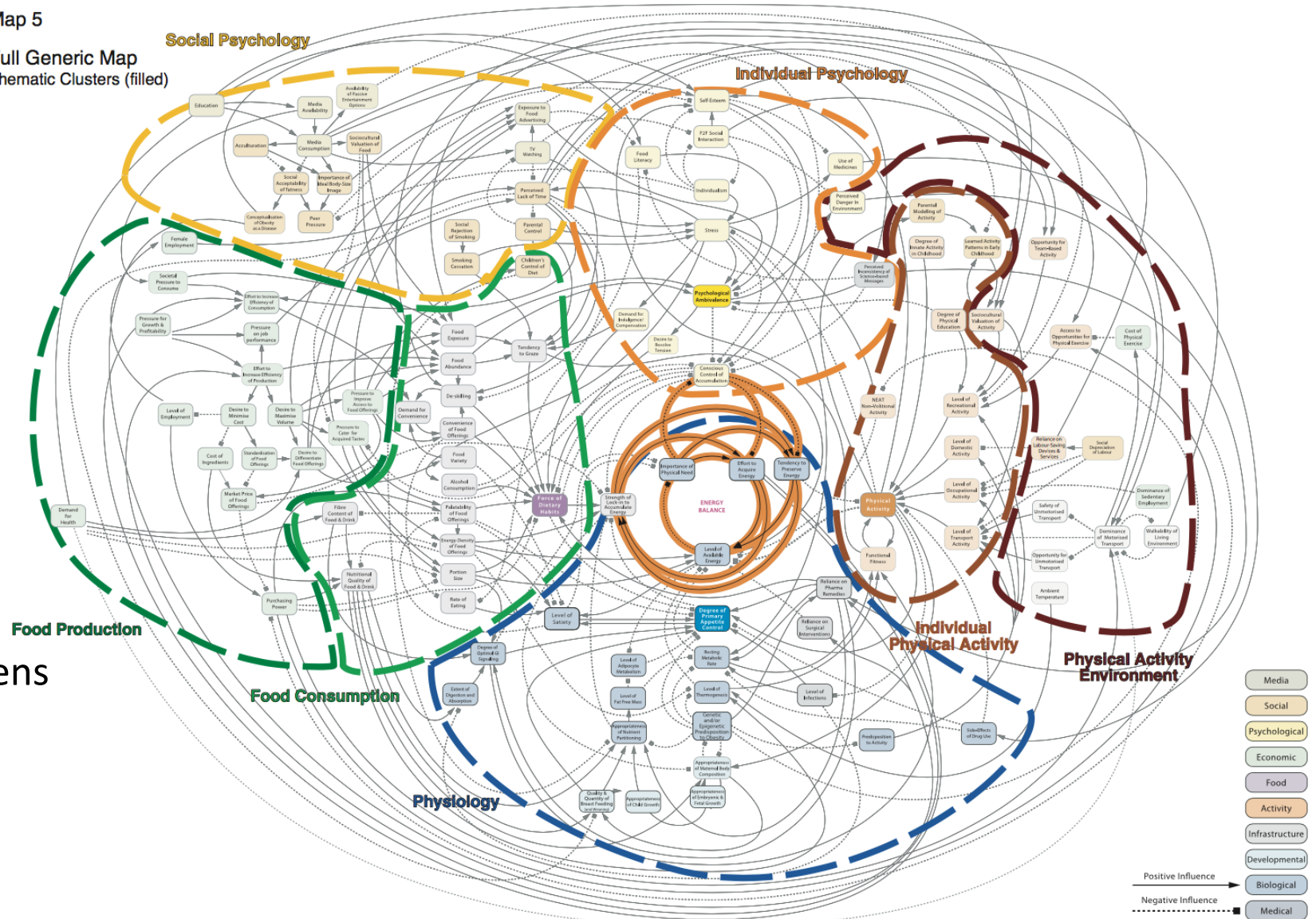
Today's vocabulary lesson:

- Socio-technical design
- Infrastructure
- Conversations of care
- Human Middleware
- Middleware

The problem: medicine cannot achieve health

Map 5

Full Generic Map
Thematic Clusters (filled)



Vandenbroek P, Goossens J, Clemens M. *Tackling Obesities: Future Choices—Obesity System Atlas*. London: Government Office for Science. ...; 2007.



The current popular solution

- **Let's integrate social and health care!**
- But...
 - When in human history has integration between two cultures resulted in a harmonious union of equals?
- Social care has a unique culture distinct from that of health care
 - It is not a culture that runs on “screen, detect and treat or refer”
 - Imposing our culture on social care will have negative consequences
- “I don't want a system to help me refer people. I want a system to help me communicate and make connections.”



Healthcare
~~We're from the University.~~ We're
here to help!



Longmont, CO – 4984 ft,
pop. 86,270



NextLight™, the community-owned high-speed fiber-optic network, has soared into the spotlight with its gigabit service to homes and businesses. In the 2017 Ookla Speedtest named

Longmont, CO

37mi N of Denver

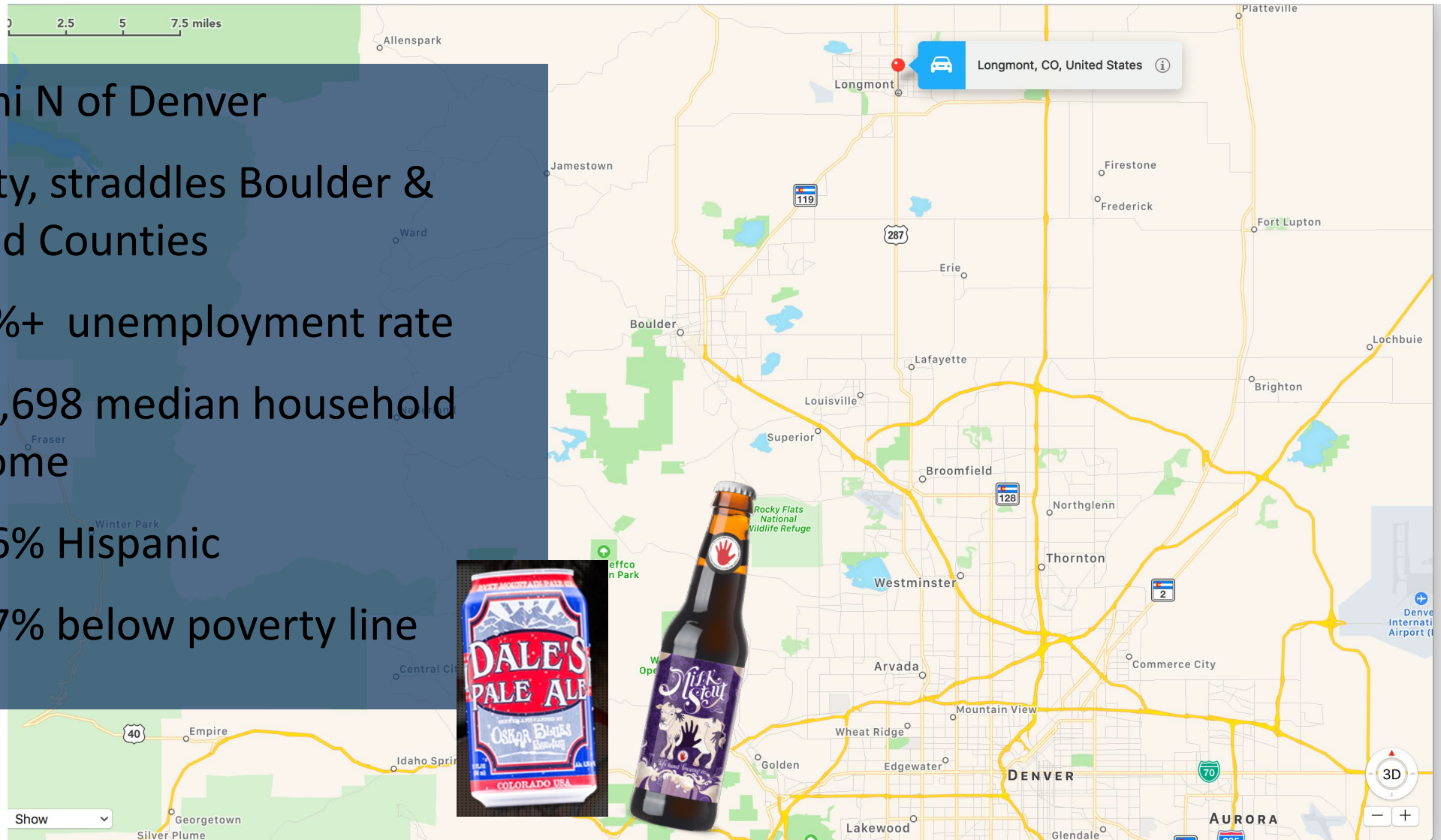
1 city, straddles Boulder & Weld Counties

2.1%+ unemployment rate

\$58,698 median household income

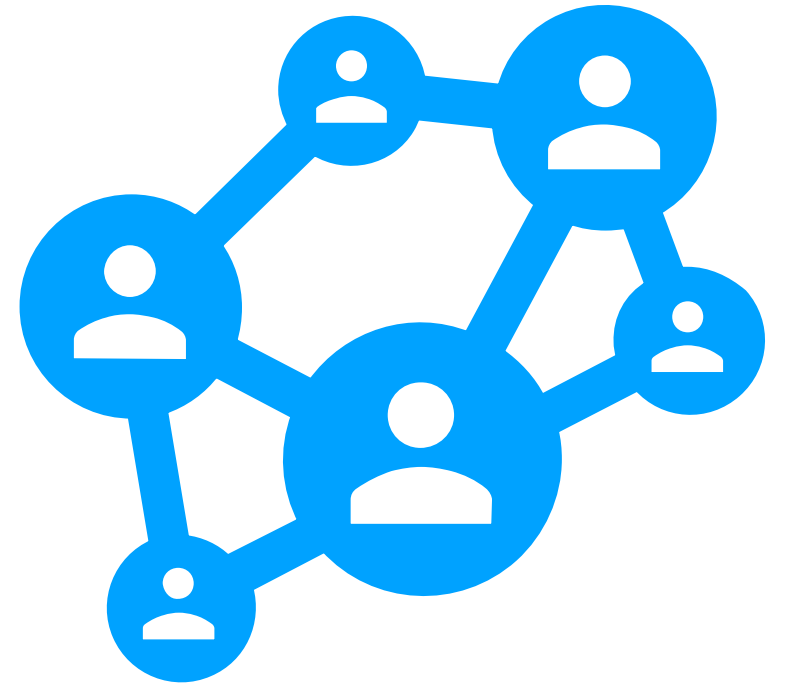
24.6% Hispanic

14.7% below poverty line



Longmont's request

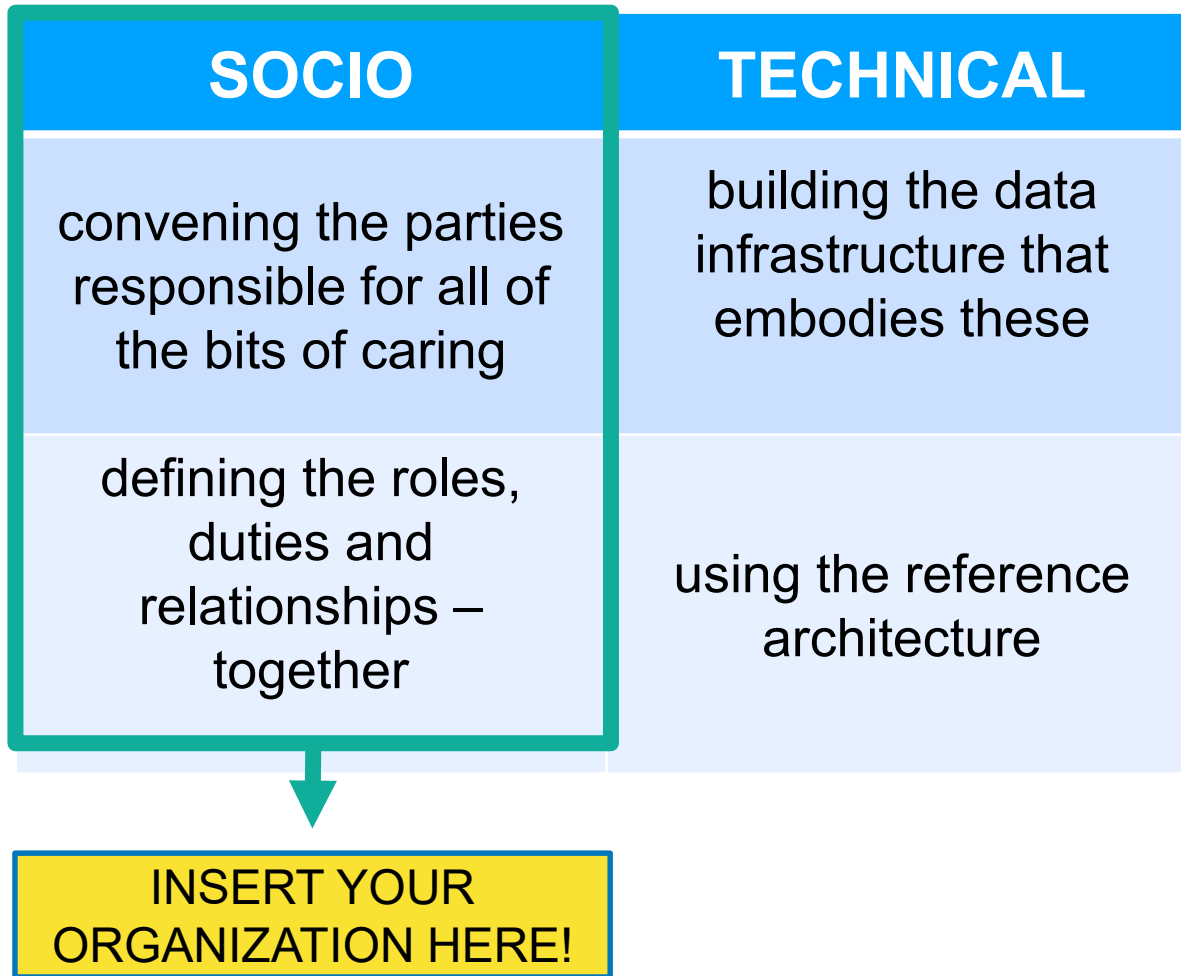
- “We have lots of great organizations in the community and within the City’s infrastructure...Help us help them communicate better.”
- “Help us with a system that provides real time information such that whenever someone is presented with a client or patient, they have what they need to provide the best services.”



Socio- technical design

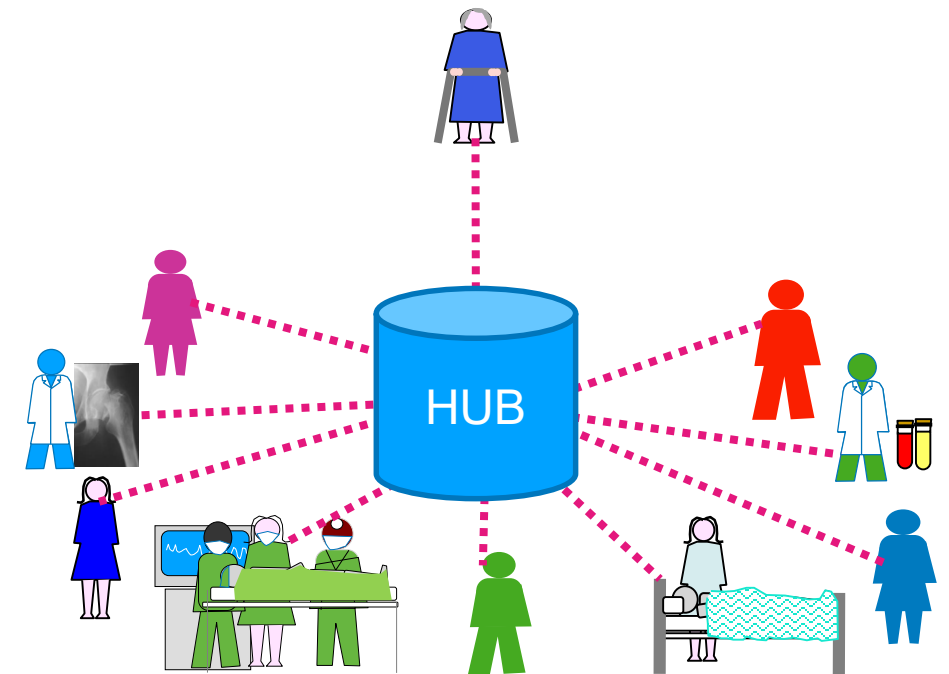
- The term socio-technical was first introduced by the UK Tavistock Institute in the late 1950s to oppose Taylorism — reducing jobs to efficient elements on assembly lines in mills and factories (Porra & Hirschheim, 2007).
- Socio-technical design puts social needs above technical wants. The argument is that human evolution involves social and technical progress in that order, e.g. today's vehicles could not work on the road without today's citizenry. Technology structures like cars also need social structures like road rules.
- For our work this meant:
 - Designing with the community involved at all steps
 - Building an infrastructure that can evolve through governance

SOCIO-TECHNICAL DESIGN



SHARED, LOCAL GOVERNANCE

MEANINGFUL CARE CONVERSATIONS



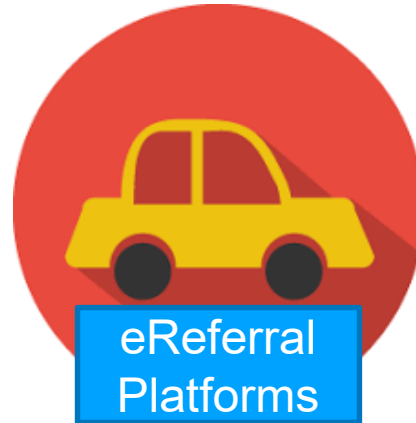
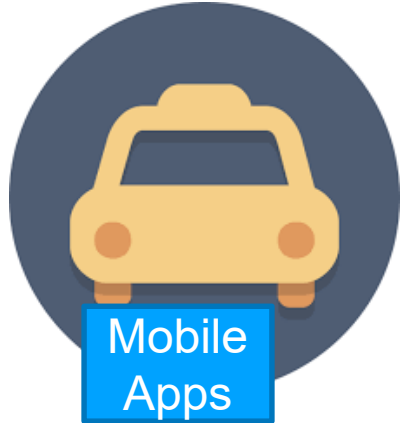
Infrastructure

- Infrastructure is magic
 - One flexibly designed element that can serve many needs
 - Has the ability to evolve as needs change
 - Rarely requires wholesale demolition and replacement
 - Examples: telecommunications & roads



APPLICATION VS INFRASTRUCTURE

- Rather than focusing on fancy new IT solution for (one) problem, promote building a shared platform to solve (most) problems



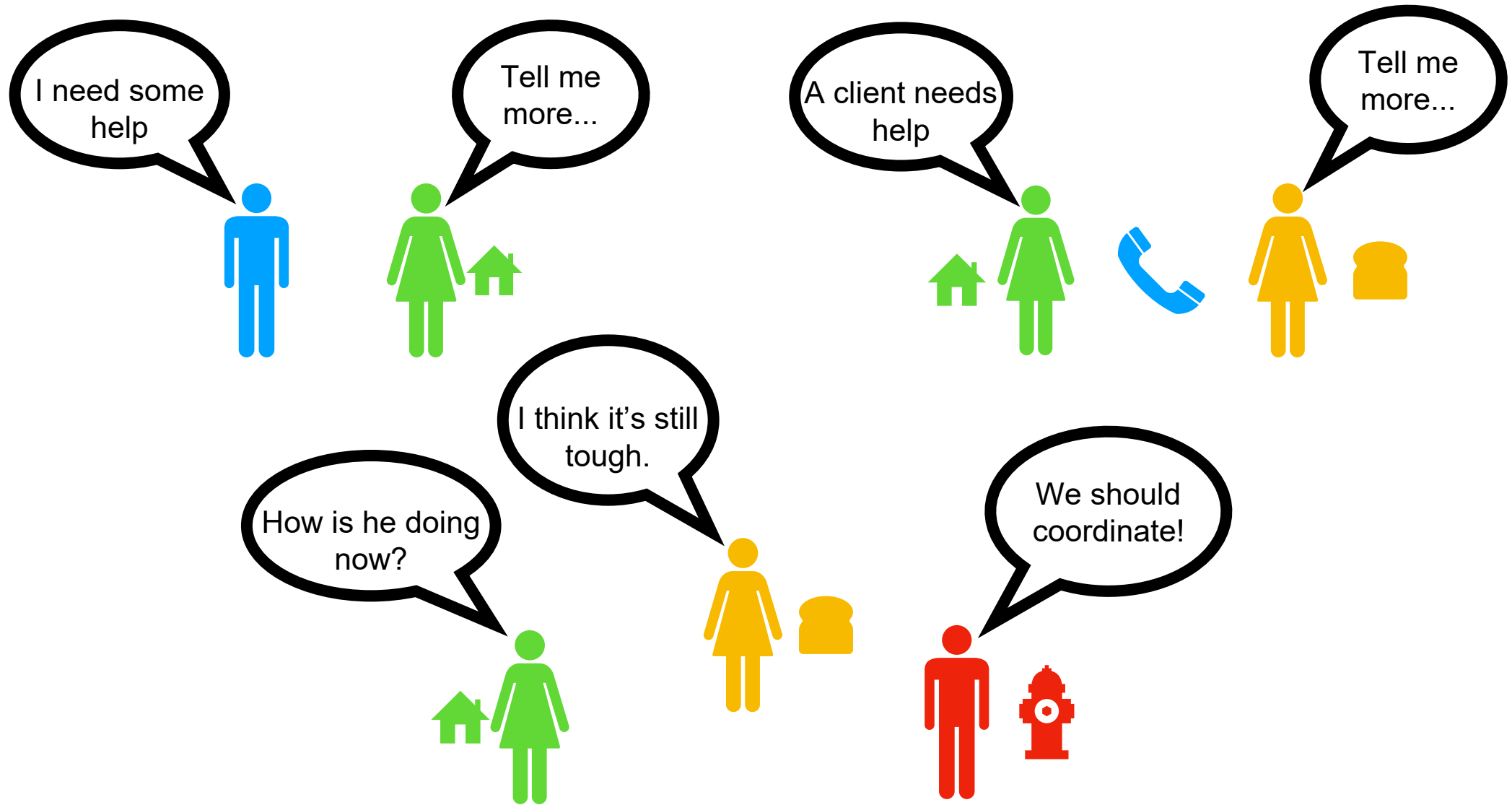
INFRASTRUCTURE



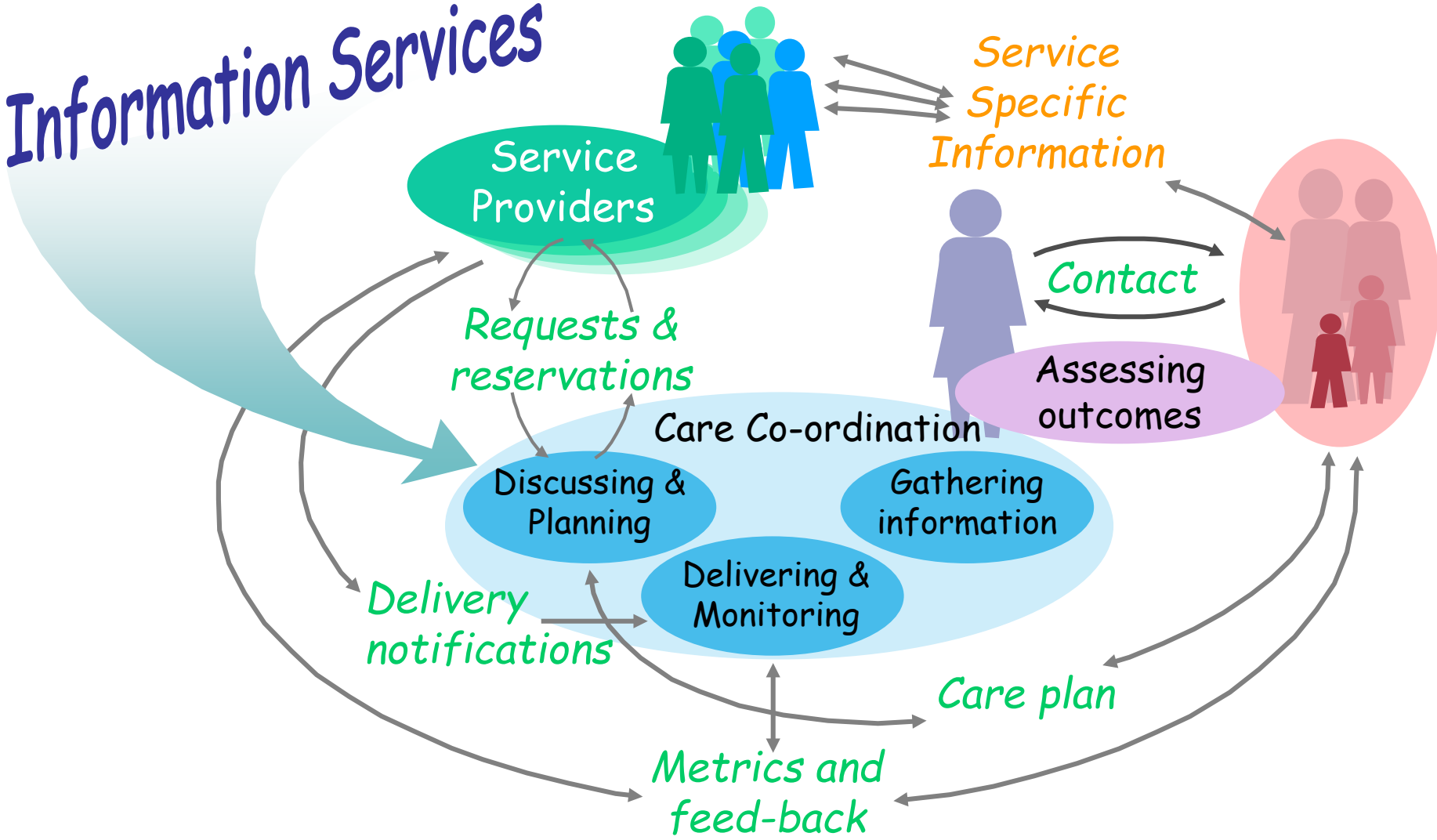
Conversations of care

- In Healthcare we have decades of established norms:
 - Office visit
 - Hospital admission
 - X-ray
 - Hospital visit on rounds
 - Discharge
 - Referral
- We know the roles, responsibilities and duties of each actor
- They are so ingrained, they are unconscious
 - “How can I help you today?” “I have a slight cough...”
- Our infrastructure needs to support these conversations of care within and across the cultures of social care & health care

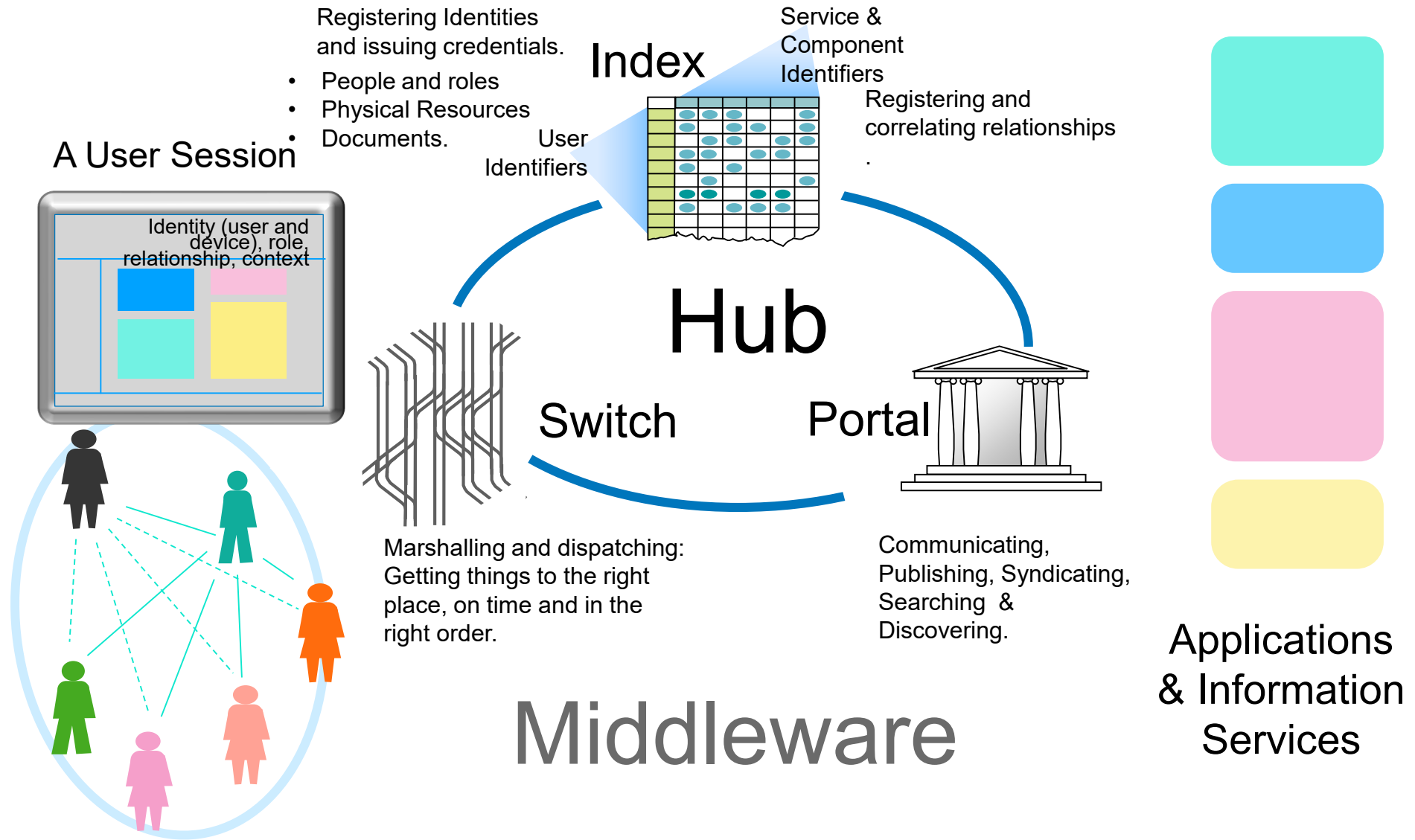
Conversations of Care



Information Services

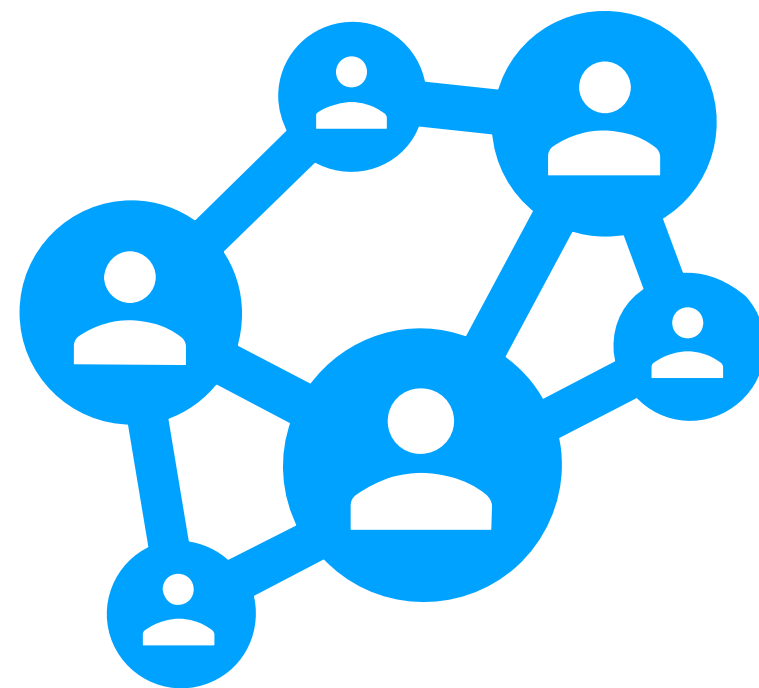


Conversations of care



Middleware supporting conversations of care

- This is a *communications* architecture not a *relational database* architecture
- Goal: facilitate and enable more and better communication among carers
 - This: equipping front line carers with better communication tools will result in better coordination
 - Not this: create a data capture and storage platform for coordination & referral
 - *The traffic across the system is the information that will be used to govern and evolve the system*

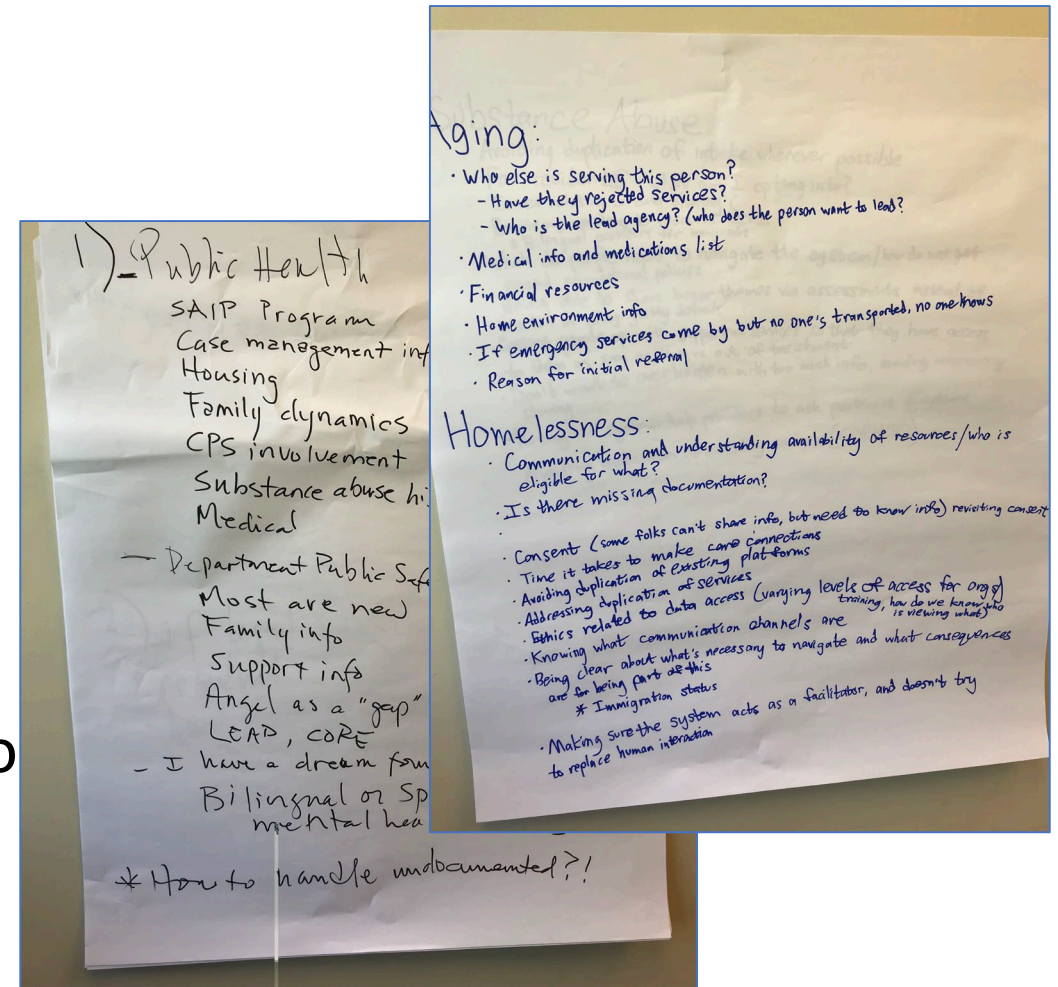


What we've been doing since December 2017

| Meeting Date | Topic |
|---------------|--|
| December 2017 | Introducing the project, listening to feedback |
| May 2018 | Beginning to map stories and pathways |
| August 2018 | Discussions of data gaps that impede conversations of care |
| October 2018 | Explore data gaps and technical next steps |
| January 2019 | Discussed infrastructure design ideas |
| July 2019 | Review funding proposal ideas and obtain feedback |
| November 2019 | Clarify “signals” desired by each group |
| February 2020 | Reviewed technical specs |

Small Group Exercises

- Collaborations: Imagine in the Longmont infrastructure we will design together...
 - What do each of your organizations know [about the resident] that needs to be shared?
 - What does your organization want to know [about the resident]?
 - What does [the resident] need to know?
 - What *don't* you need to know?
 - When does your organization need to know [it]? – Timeliness
- Outcome: lists of chunks of data [things] to be analyzed into pathways



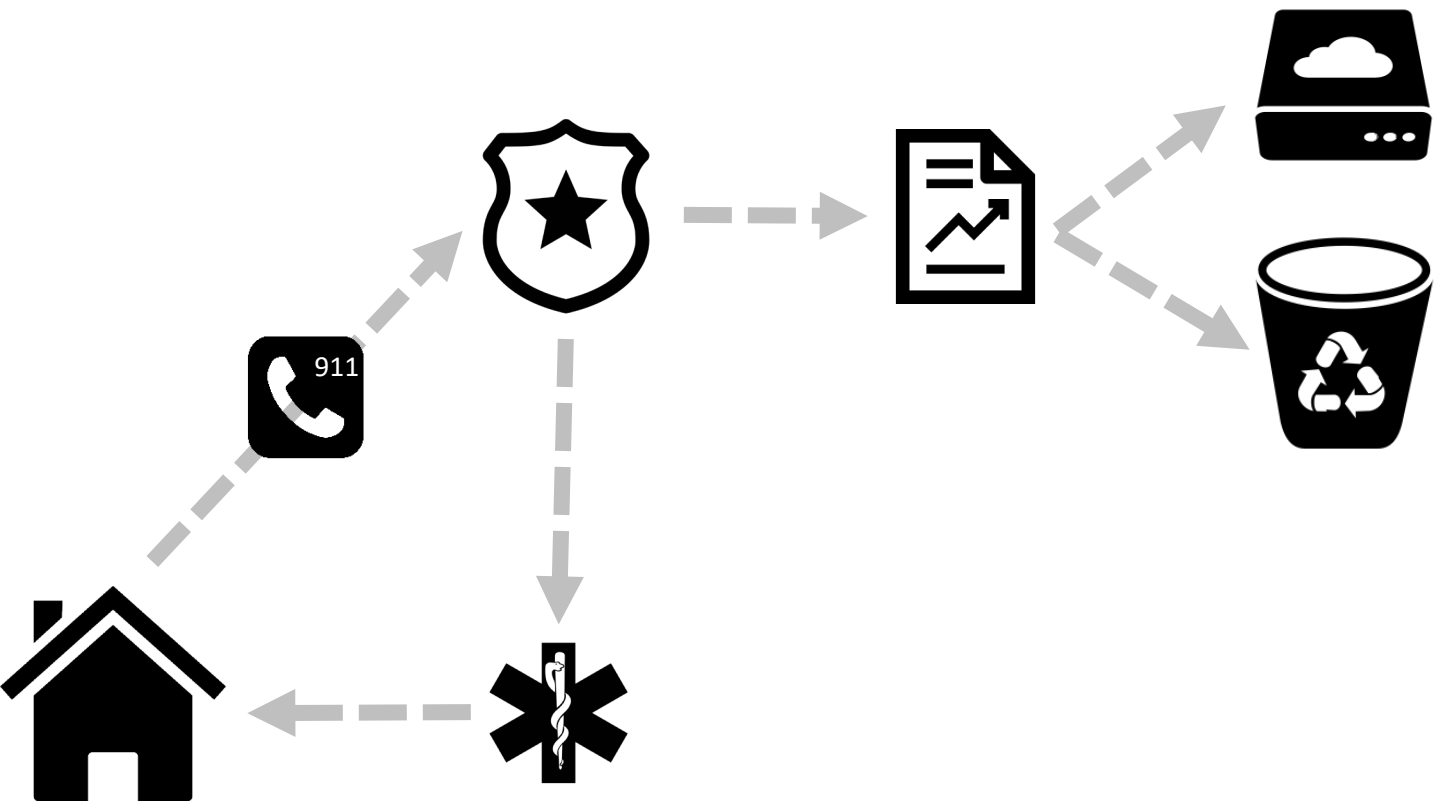
Surveys – Social Data that your organization collects VS needs

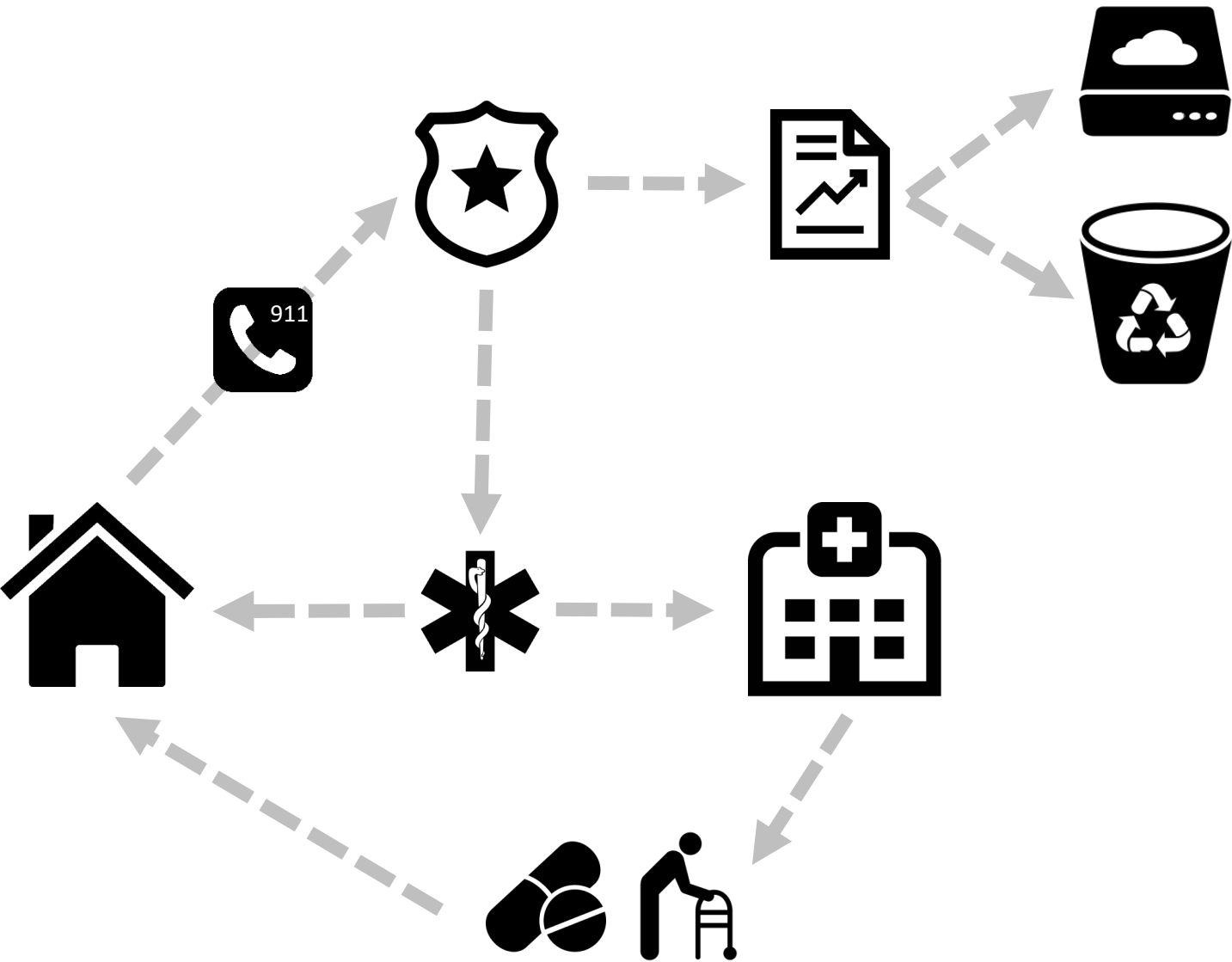
| Social Data Collected | | |
|-------------------------------------|----|------|
| Options | n | %* |
| Personal Contact Information | 28 | 96.6 |
| Basic demographics | 27 | 93.1 |
| Family contact information | 20 | 69 |
| Languages | 17 | 58.6 |
| Income | 14 | 48.3 |
| Employment | 13 | 44.8 |
| Housing | 12 | 41.4 |
| Social determinants screening | 12 | 41.4 |
| Assistance programs (enrolled) | 11 | 37.9 |
| Social care providers | 11 | 37.9 |
| Level of education | 10 | 34.5 |
| Eligibility for assistance programs | 10 | 34.5 |
| Home safety | 10 | 34.5 |
| Transportation | 9 | 31 |
| Assistance programs (applied) | 9 | 31 |
| School (youth) | 9 | 31 |
| Food security | 8 | 27.6 |
| Government documents | 8 | 27.6 |
| Criminal History | 7 | 24.1 |
| Public safety contacts | 4 | 13.8 |

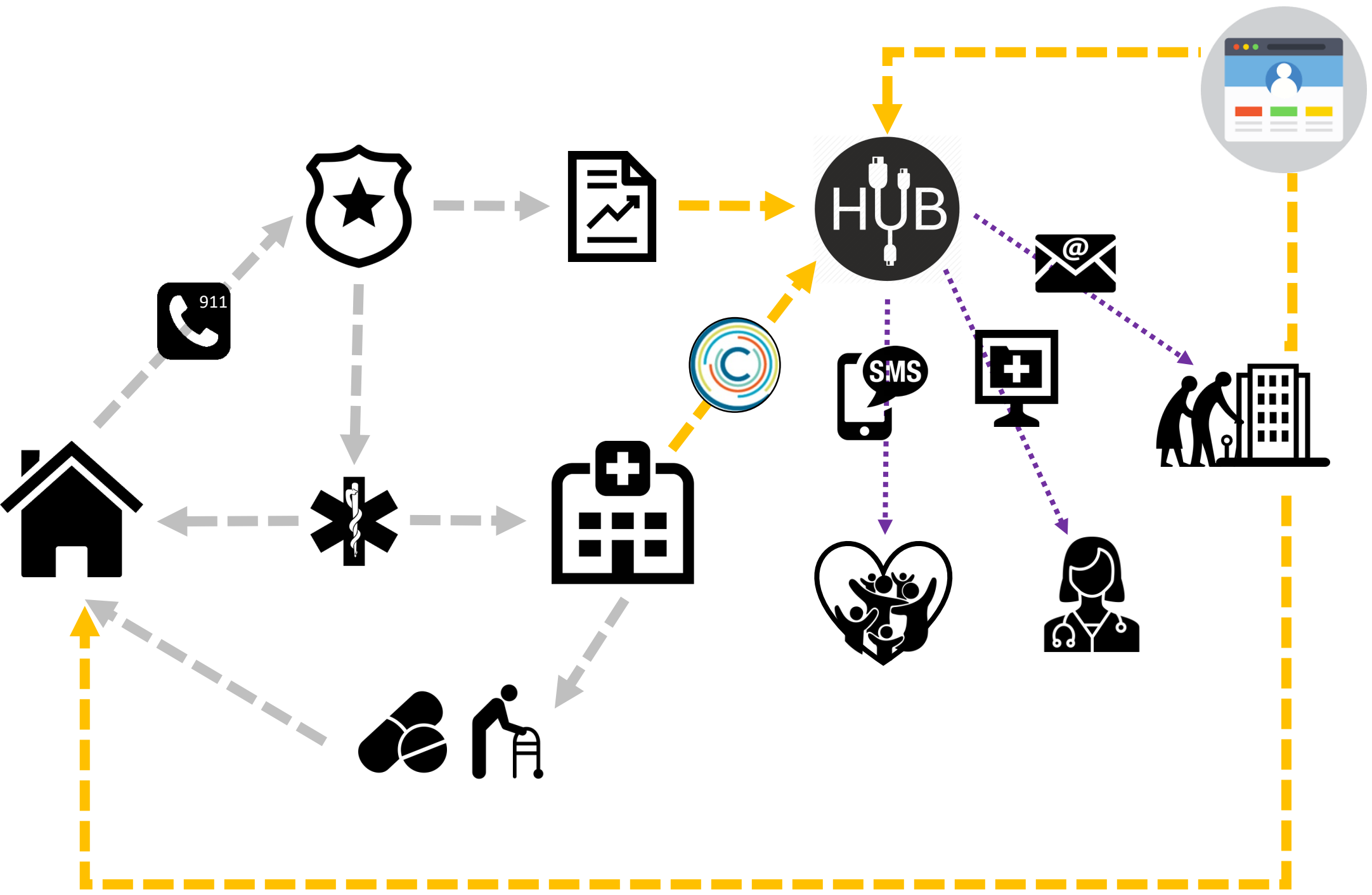
| Social Data Needed | | |
|-------------------------------------|----|------|
| Options | n | %* |
| Food security | 16 | 59.3 |
| Eligibility for assistance programs | 15 | 55.6 |
| Social determinants screening | 14 | 51.9 |
| Social care providers | 13 | 48.1 |
| Public safety contacts | 12 | 44.4 |
| Assistance programs (enrolled) | 11 | 40.7 |
| Housing | 10 | 37 |
| Employment | 10 | 37 |
| Home safety | 10 | 37 |
| School (youth) | 10 | 37 |
| Languages | 9 | 33.3 |
| Assistance programs (applied) | 9 | 33.3 |
| Government documents | 9 | 33.3 |
| Income | 8 | 29.6 |
| Transportation | 8 | 29.6 |
| Personal Contact Information | 7 | 25.9 |
| Basic demographics | 7 | 25.9 |
| Level of education | 7 | 25.9 |
| Criminal History | 7 | 25.9 |
| Family contact information | 5 | 18.5 |











“It sounds like you are building something to do what we used to be able to do for ourselves when this community was smaller.”

- Yes! We are building an infrastructure to make that possible again.
- We are using:
 - Engagement
 - Ethnography
 - Technology
 - Socio-technical design principles
 - Community governance



Discussion