

Keeping People First in the Smart Cities Enterprise



Smart Cities Initiative

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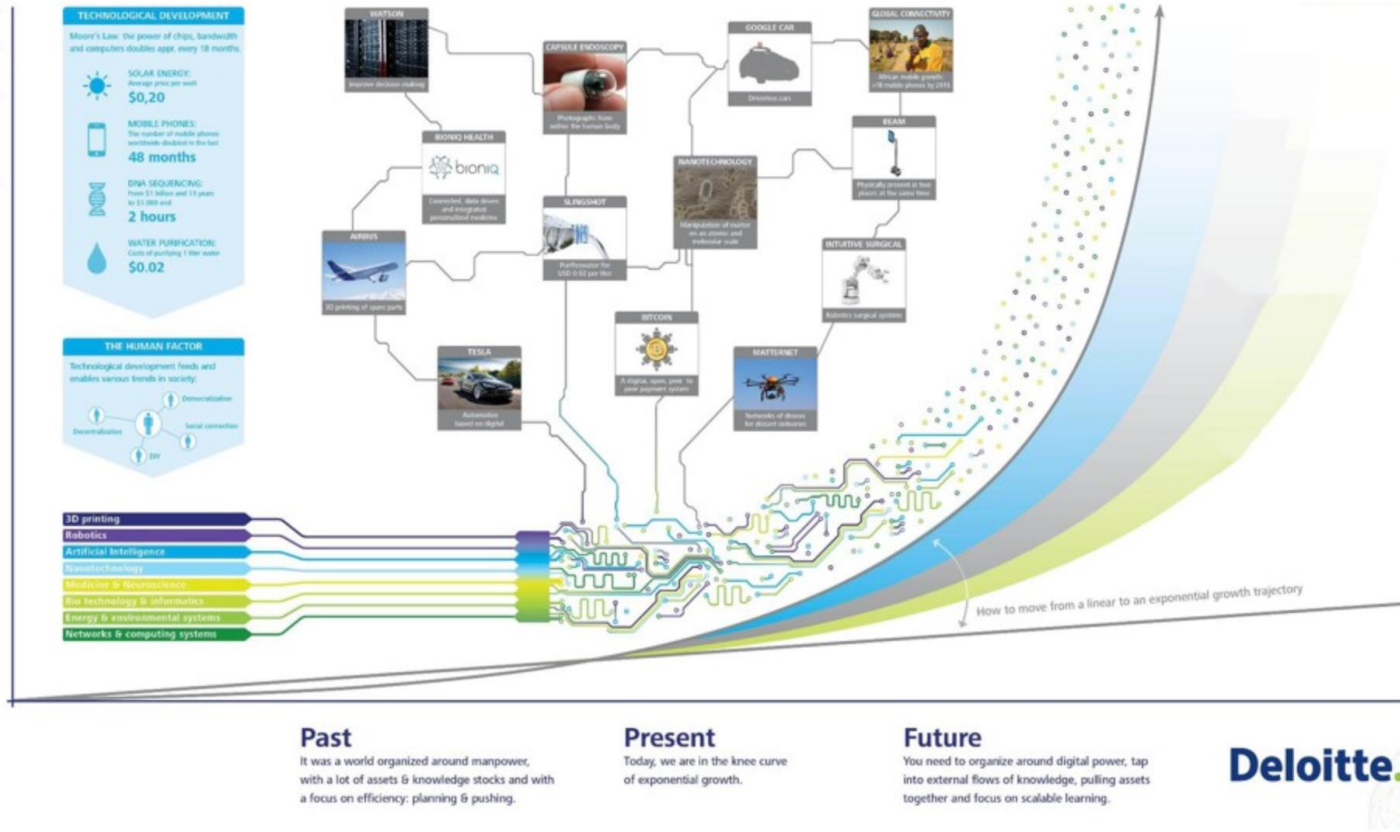
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UAF Summit

Washington, D.C.

March 21, 2023

Other technologists aren't nearly as subtle.



Smart Cities are a moving target

And lack of success has diminished the concept and term

Videos

What is a smart city? | CNBC Explains

CNBC International
YouTube - Feb 9, 2017

What is a smart city

VINCI Energies
YouTube - Aug 24, 2015

Smart Cities Explained In 101 Seconds

Qualcomm
YouTube - Jun 14, 2016



INCOSE: A Better World Through a Systems Approach

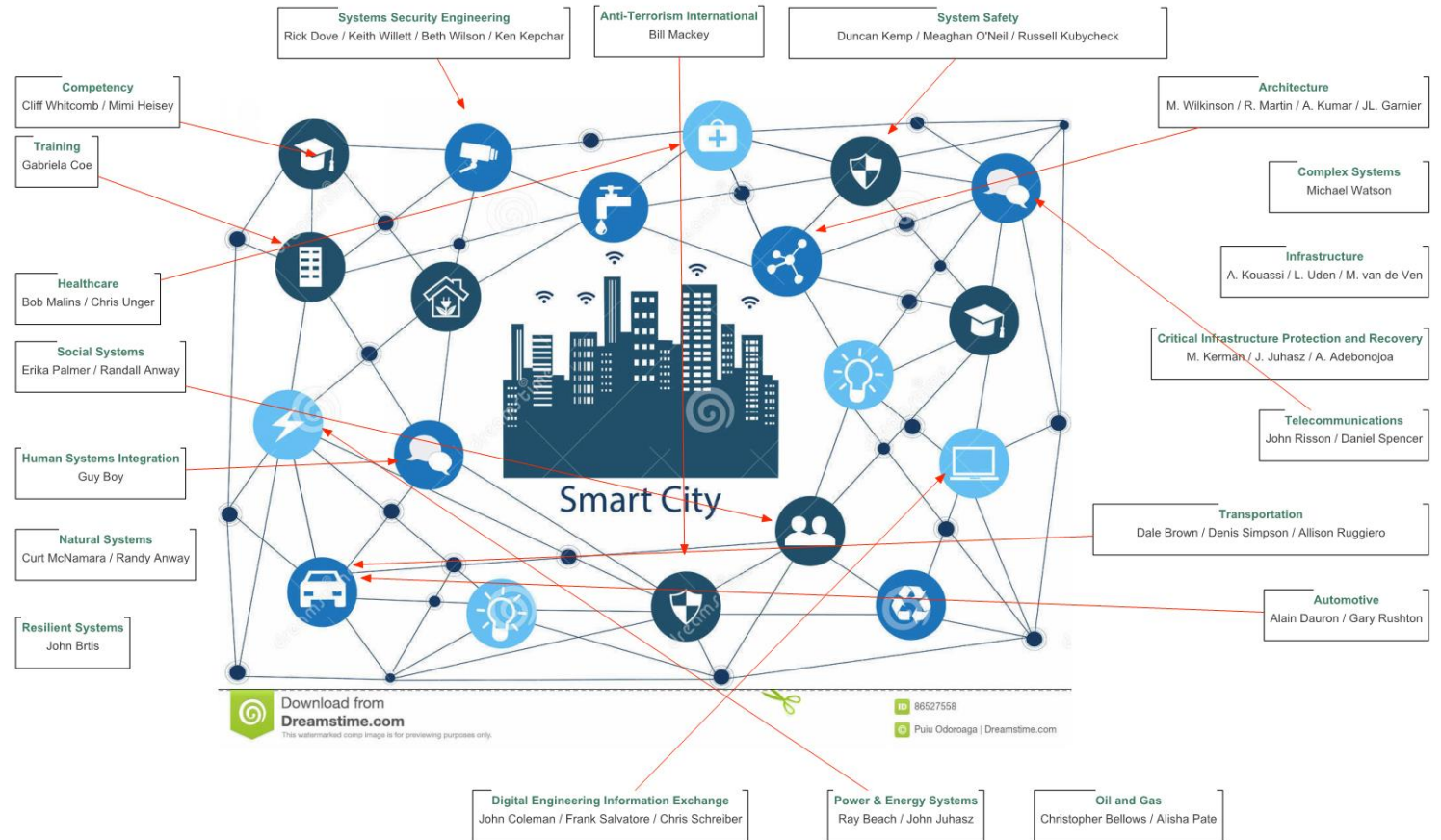
*The global professional association
for systems engineers*



International Council on Systems Engineering



INCOSE Working Groups



Collaboration



IEEE



IEC



Municipalities
(in progress)



Smart Cities
organizations
(in progress)

Purpose

- Support communities
 - Concepts
 - Applications
 - Technology
 - Services (CATS)by leveraging systems engineering tools and principles

Goal

- Create a model that illustrates the resources
- Enabling
 - interconnectivity
 - reuse
 - consistency

'Frankenstein' lunges to new life for Cisco and smart Carlsbad, California

by Matt Hamblen | Feb 5, 2021 5:12pm



Technology focused smart cities are rethinking their approach

Success in a smart city “has nothing to do with technology and has to do with people. We need to invite the public into co-creating these experiences with high degree of civic engagement. Cities need to be engaged with the public around connecting communities.”

- David Graham, Chief Innovator Officer for the City of Carlsbad, California.



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[Home](#) | [Urban Space](#) | [Planning and redevelopment](#)

New York's reimagined people-first Broadway plan progresses

[Planning and redevelopment](#) 13 Mar 2023 by SmartCitiesWorld news team

The latest phase of the plan will deliver two new plazas, shared streets, and a two-way bike lane on Broadway from West 25th Street to West 32nd Street.



Technology focused smart cities are rethinking their approach

Guiding the evolution of smart cities

By [Calil Queiroz](#) June 01, 2021

The idea of the “Smart City” is a fashionable one. However, there is no common definition of what a smart city should look like.



We need a
common
definition for a
smart city



(Image credit: Image source: Shutterstock/ jamesteohart)

INCOSE Smart City Definition provides evaluation and comparison



A smart city is capable of



identifying its problems and



mitigating root causes



by generating and processing

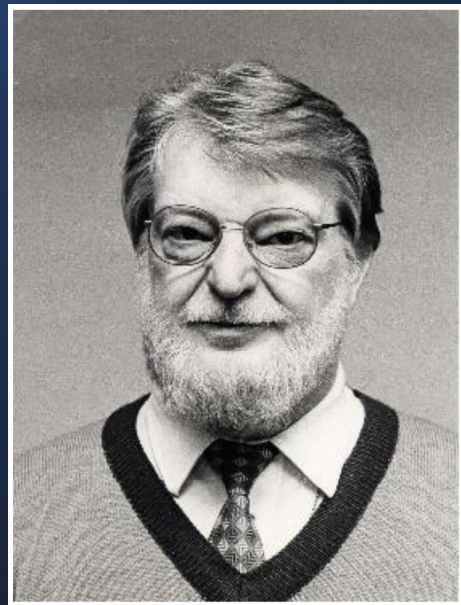
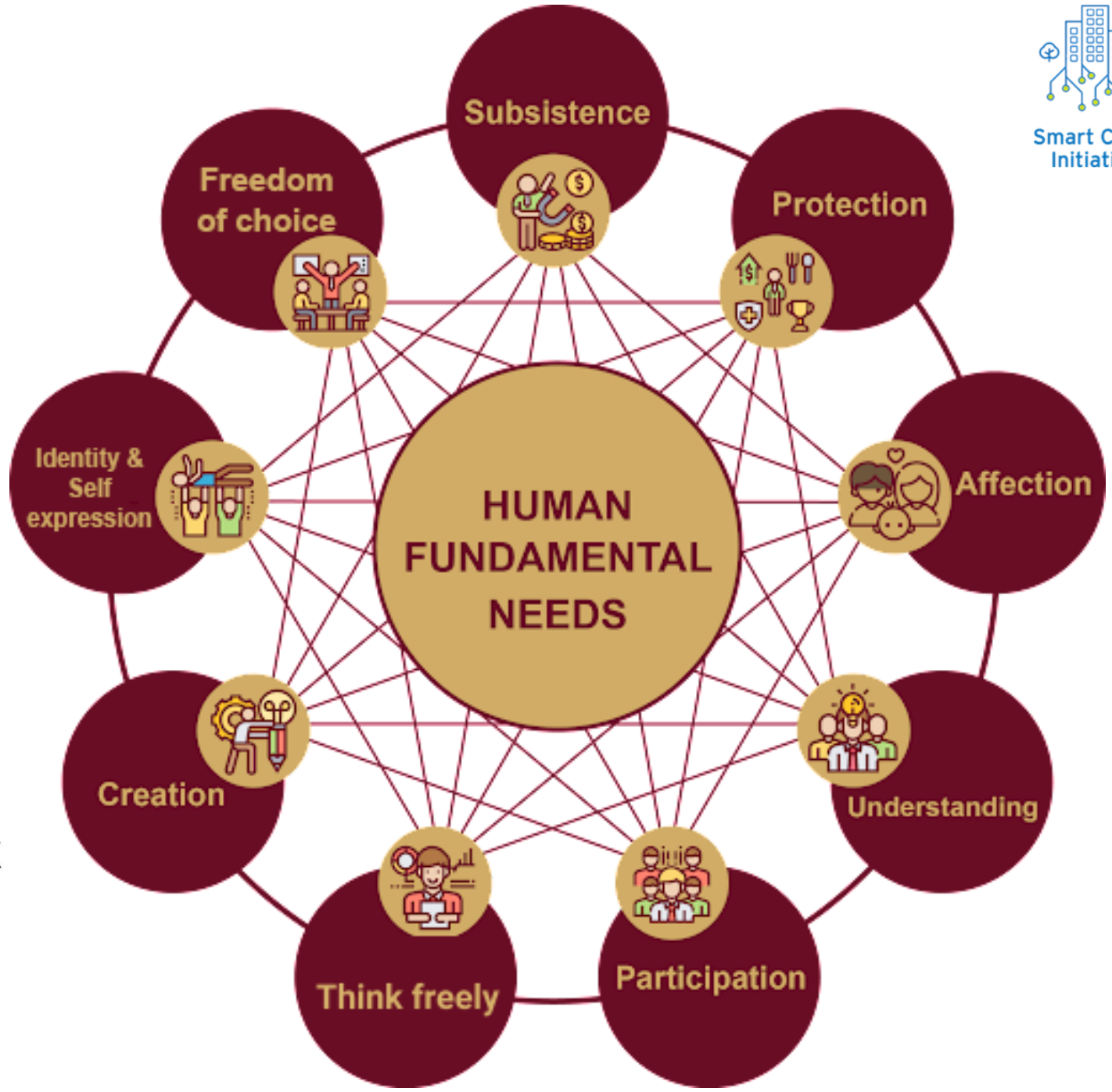


engineered quality data in a continuous and inclusive manner.



Smart Cities Initiative

Human Fundamental needs are the basis for a Smart City's goal



Economist
Artur Manfred Max Neef /1932-2019/

People are at the center of the most complex challenges facing today's municipalities around the world. Economic development, unhoused residents, healthcare, racial equity, and many other issues are directly related to the humans in the city. Meanwhile, technology continues to provide new resources and opportunities. Smart Cities efforts often attempt to leverage technology to solve the human challenges, however the efforts can fall short. The INCOSE Smart Cities Initiative has developed an approach to focus on the humans in the city and identify solutions to best support their needs.

We propose a human-centric model to help cities make decisions with human needs in focus. This model helps identify and classify technological and other investments with the greatest positive impact for the residents. This document proposes a new framework, a definition of a smart city, and human-centric metrics to consider for evaluating a smart city.



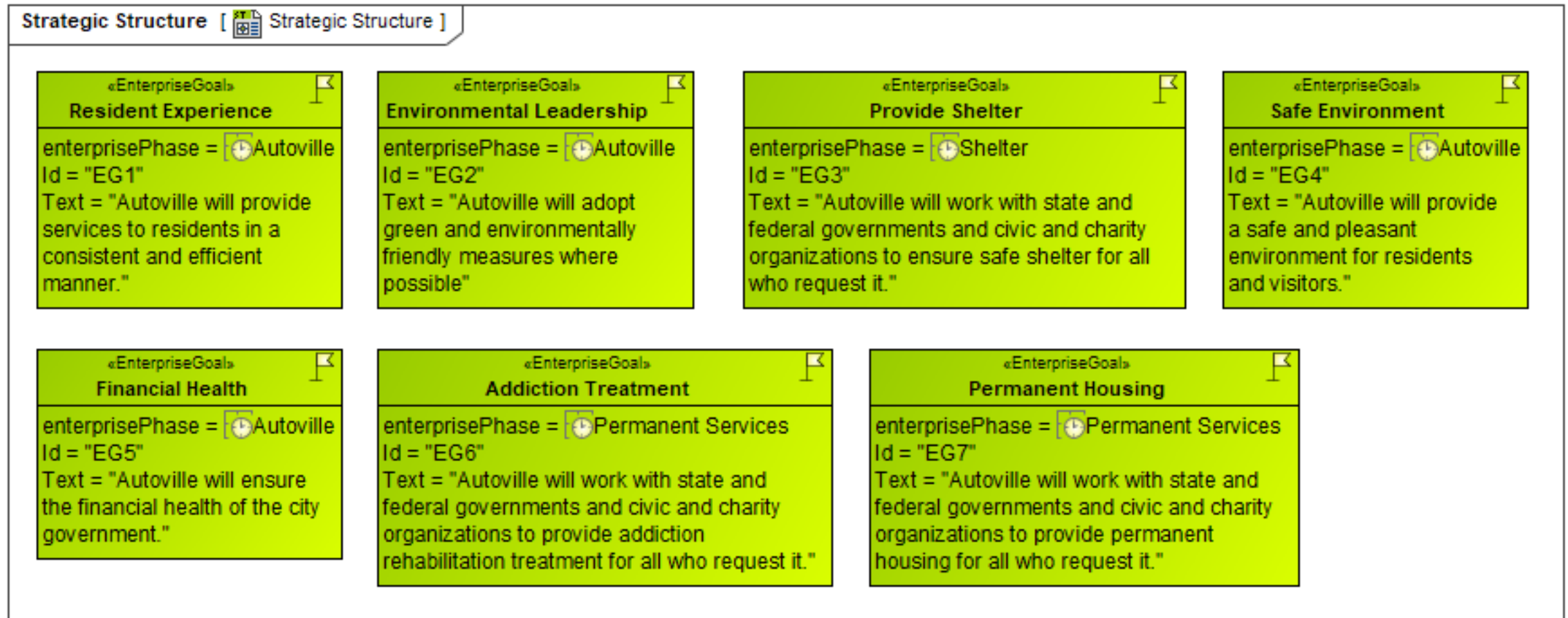
Social Enterprises

Part of INCOSE Smart Cities Initiative

- Autoville has been experiencing an increasing number of unhoused people. They reside in city parks, under bridges, in makeshift encampments, and on the city streets. This has caused increased crime, increased police interactions, overloaded courts, resident complaints, and decreased tourism. Sadly, an increasing number of unhoused people have been dying from violence, overdose, alcohol poisoning, and exposure. The city administration has decided to study the situation and provide services to improve the situation. These include housing, treatment, counseling, and education rather than increased law enforcement or ignoring the problem.

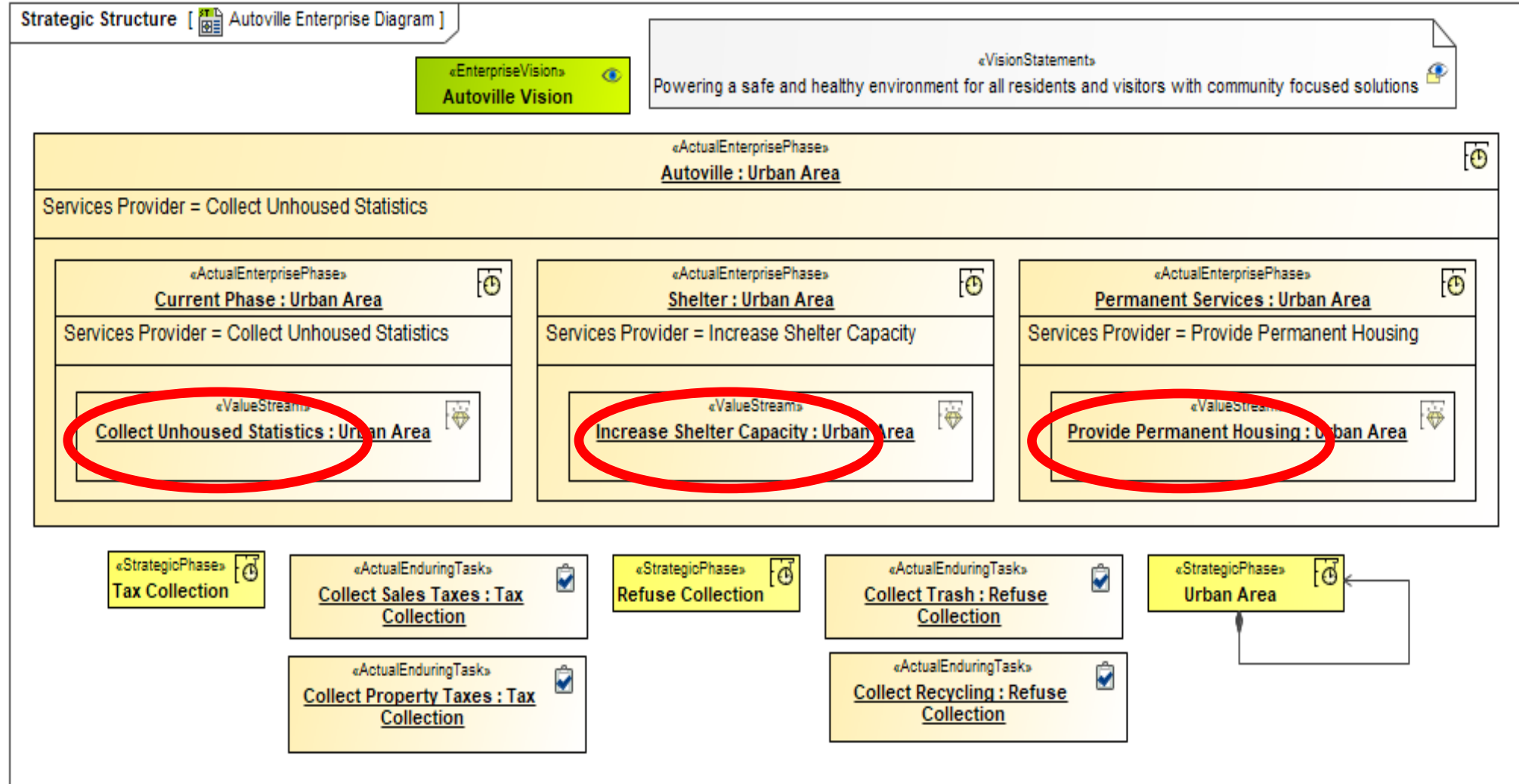
Initial Project Goals

- Setting goals defines what Autoville wants to achieve
- These can be phased over time.



Autoville Three Phase Project

- Collect Statistics and study the problem
- Increase shelter capacity
- Provide addiction treatment
- Provide permanent housing.
- Increase employment training



Types of Homeless People and Their attributes

Personnel Taxonomy [Personnel Taxonomy Unhoused Types]

«valueType»
Current Housing

enumeration literals

- Shelter
- Tent
- Street
- Park
- Under Bridge
- Homeless Encampment
- Other

«Person»
Unhoused Person

measurements

- «Measurement» Primary Cause : Unhoused Cause
- «Measurement» Time Unhoused : Elapsed Time{id}
- «Measurement» Secondary Cause : Unhoused Cause
- «Measurement» Resides : Current Housing
- «Measurement» Age : Integer
- «Measurement» Criminal History : Boolean

«valueType»
Unhoused Cause

enumeration literals

- Mental Health
- Unemployment
- PTSD
- Family Breakdown
- Substance Abuse
- Other
- Domestic Violence
- Illness

«Person»
Chronic Unhoused

«Person»
Episodic Unhoused

«Person»
Transitional Unhoused

«Person»
Hidden Unhoused

«ActualPerson»
Fred : Chronic Unhoused

{actualCondition = Burgen Park, Homeless Encampment}

Age = 57
Criminal History = true
Primary Cause = PTSD
Resides = Street
Secondary Cause = Substance Abuse
Time Unhoused = 500.0

«ActualPerson»
Mary : Episodic Unhoused

{actualCondition = 4th Street Bridge, Homeless Encampment, Stable}

Age = 33
Criminal History = false
Primary Cause = Domestic Violence
Resides = Park
Secondary Cause = PTSD
Time Unhoused = 50.0

«ActualPerson»
Bob : Transitional Unhoused

{actualCondition = Terminal Cancer, 4th Street Bridge, Homeless Encampment}

Age = 42
Criminal History = true
Primary Cause = Illness
Resides = Shelter
Secondary Cause = Unemployment
Time Unhoused = 20.0

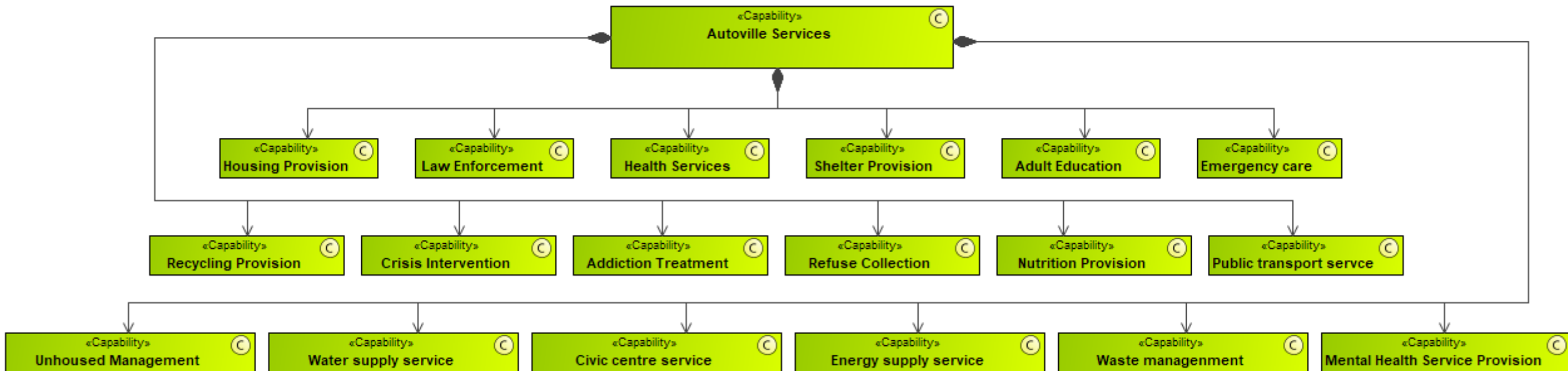
«ActualPerson»
Larry : Hidden Unhoused

{actualCondition = Couch Surfing, Stable, Apartment}

Age = 26
Criminal History = true
Primary Cause = Unemployment
Resides = Other
Secondary Cause = Other
Time Unhoused = 10.0

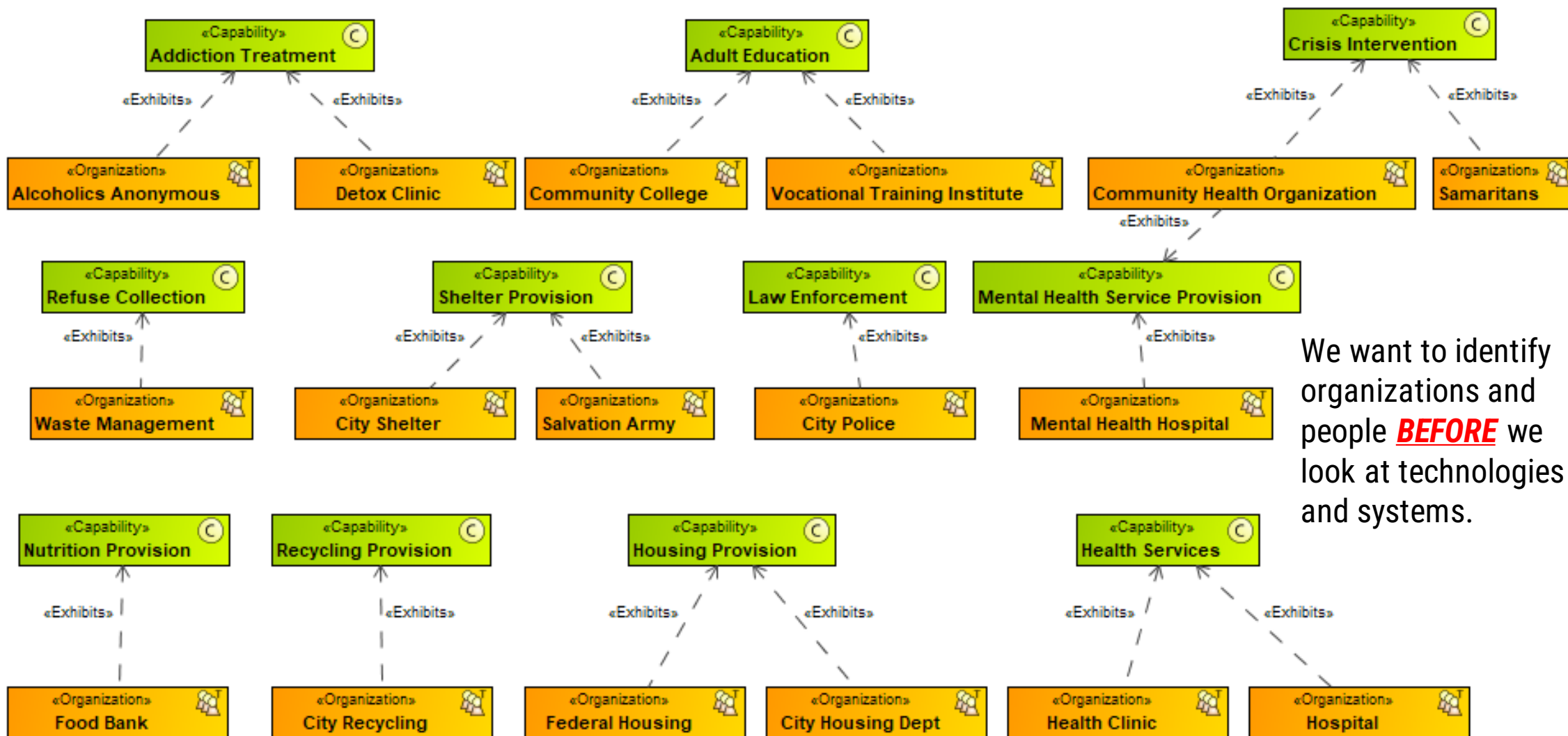
Autoville Capabilities

- Existing Autoville Capabilities are identified
- These are provided by the government, volunteer organizations and industry



Organizations Providing These Capabilities

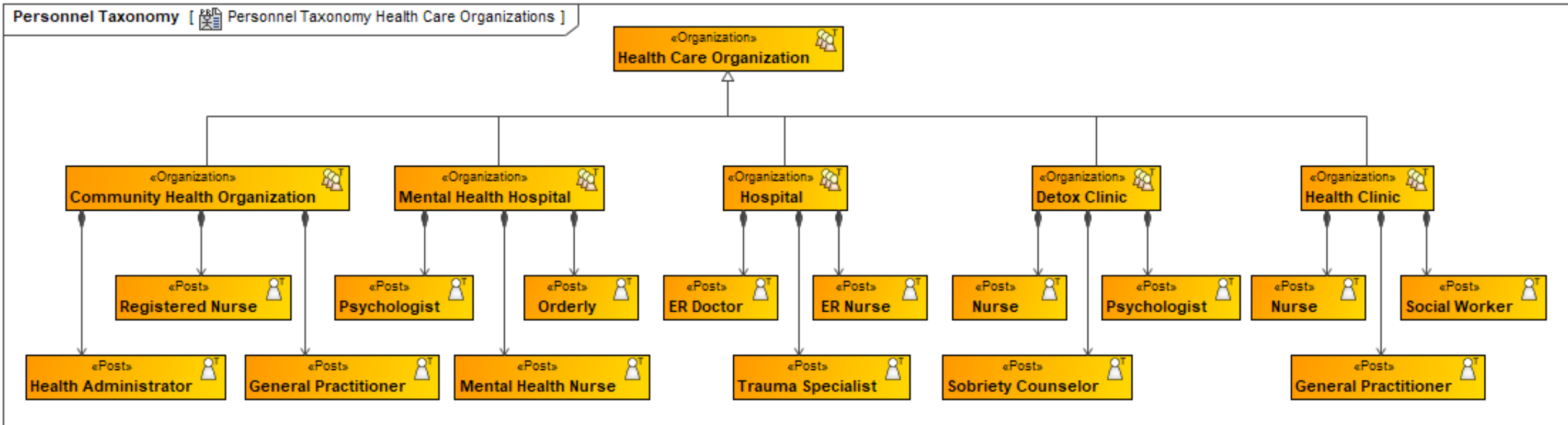
Resources Taxonomy [Resources Taxonomy Capability Mapping]



We want to identify organizations and people **BEFORE** we look at technologies and systems.

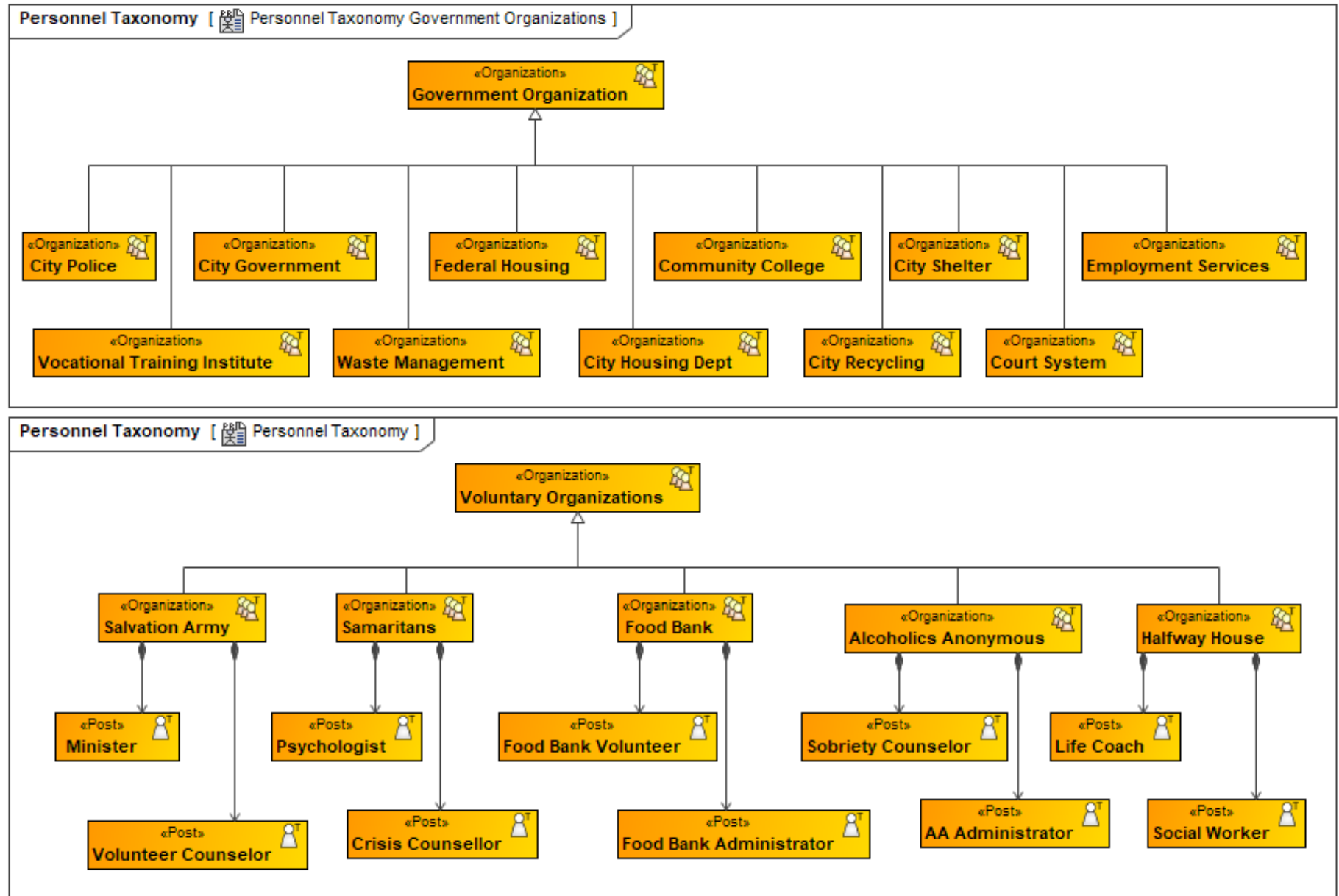
Healthcare Organizations and Staffing

- Health Care Organizations are both public and private.
- All are charged with a duty of care to the community
- Some offer specialized services



Organizations Interacting with the Unhoused

- There are many government, voluntary, and healthcare organizations who interact with the unhoused.
- Documenting the people who provide services helps to understand the problem.



Events in an Unhoused Person's Life

- Positive and negative events occur in the life of an unhoused person.
- These can either escalate the problem, or work towards a solution.
- Understanding this interaction is essential.

Personnel Taxonomy [Personnel Taxonomy Unhoused Events]

Negative Events

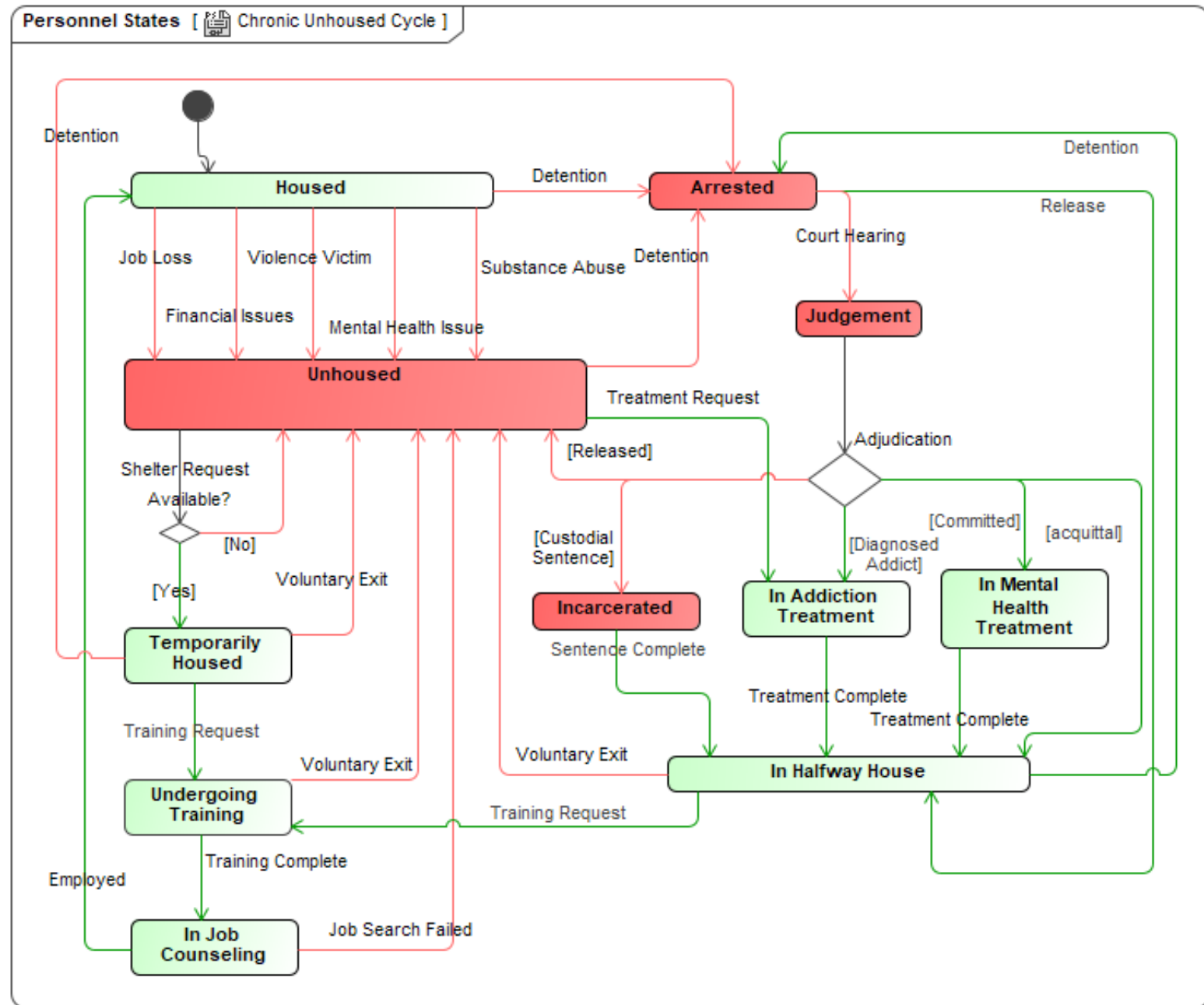


Positive Events



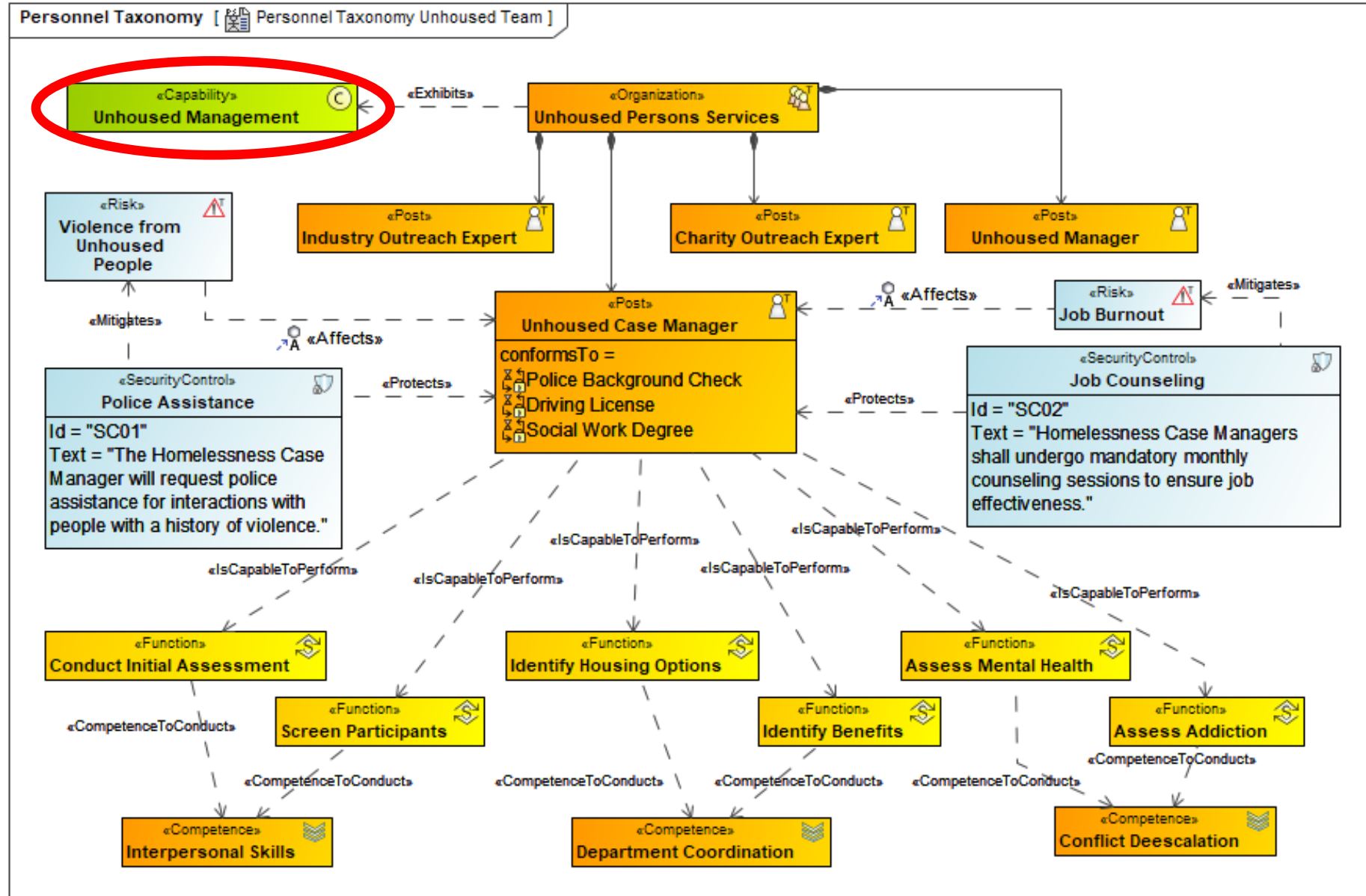
Chronic Unhoused Cycle

- The previous events have been studied to determine the unhoused vicious and virtuous cycles.
- By documenting these cycles, experts can determine where to intervene to improve things
- This can move the person from the vicious to virtuous cycle

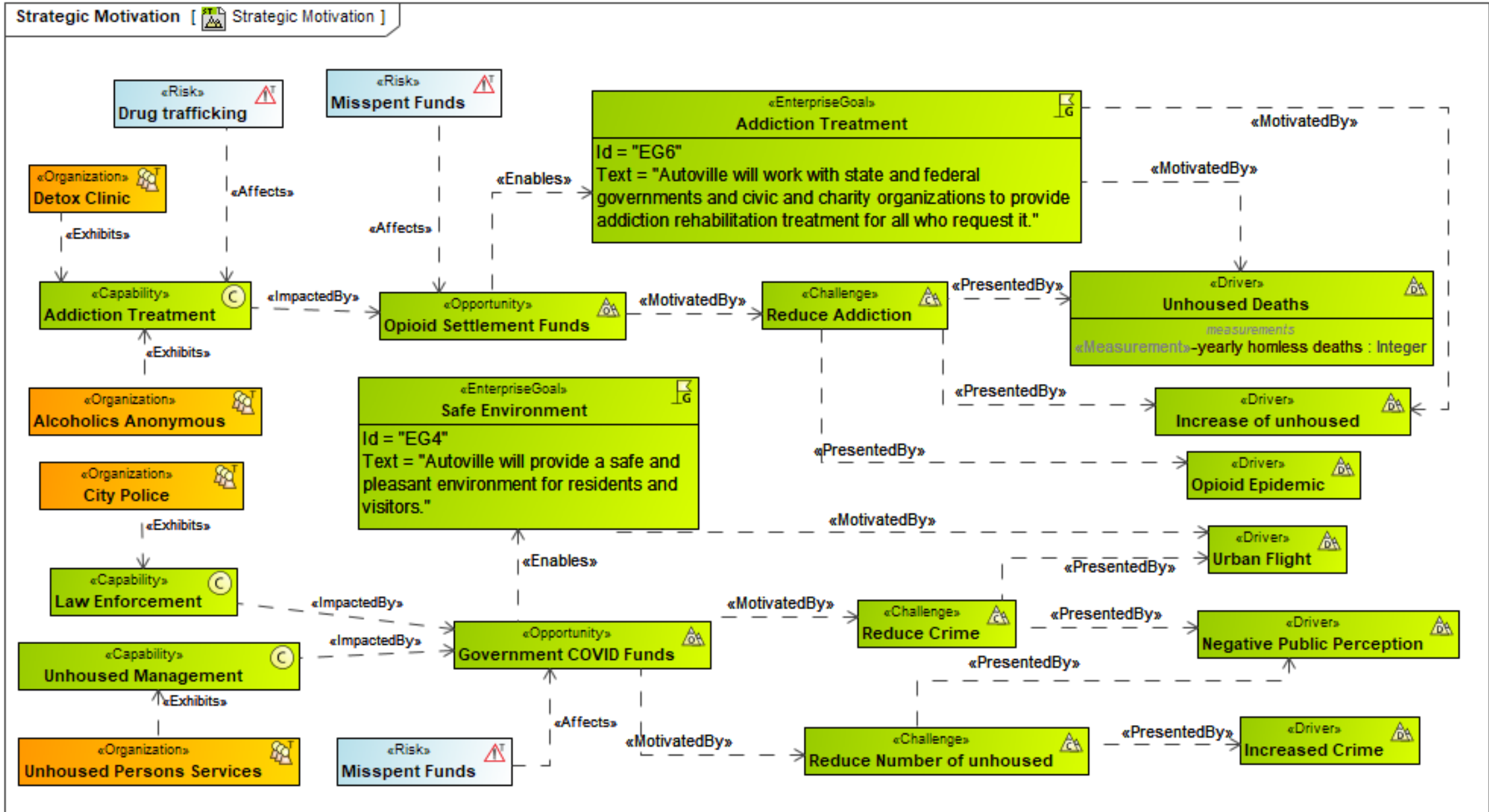


Unhoused Persons Services Organization

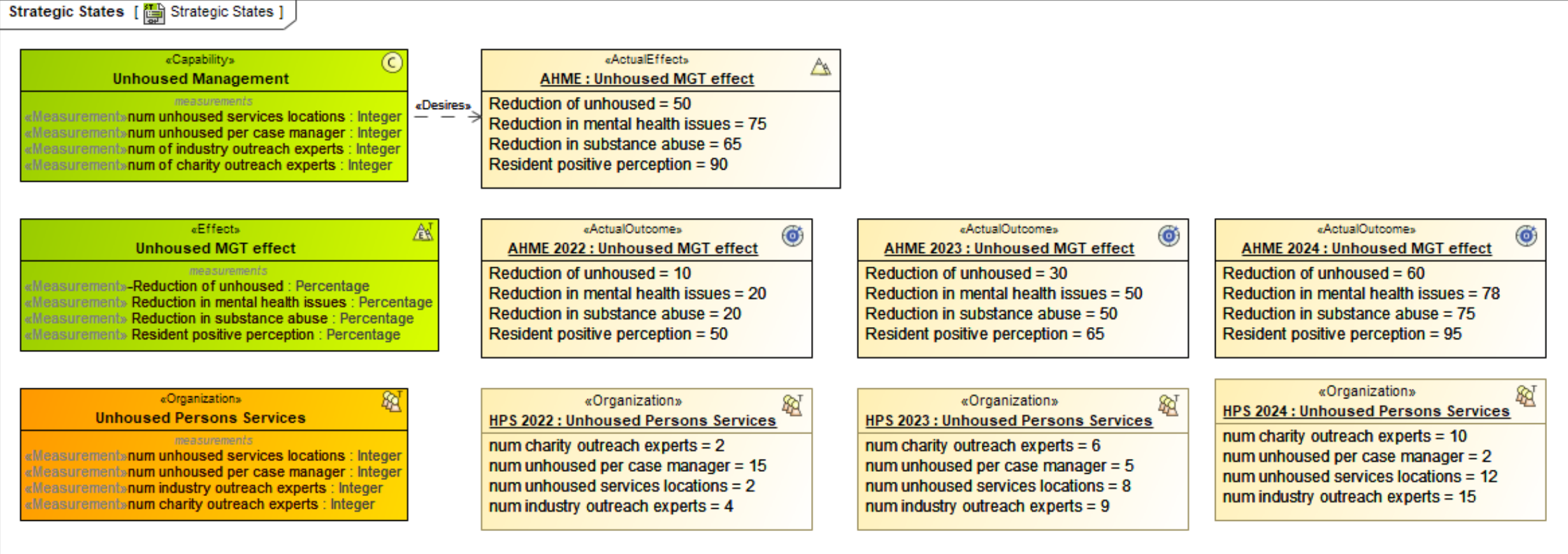
- Currently, unhoused residents are everyone's and no one's problem.
- A specialized team will be created to serve unhoused residents.
- They will work with government departments, industry, medical facilities, and addiction services to find solutions
- Risks and mitigations have been identified and proposed.



Strategy to Help Unhoused People and Improve Autoville



Measuring the Effects of Strategy to Help Unhoused People and Improve Autoville



- By understanding the causes of unhoused residents, what the major events are, and the cycle of being involuntary unhoused, Autoville leaders can attempt to intervene and end the cycle.
- A specialized department will be created and funded with authority and responsibility to address the problem.
- Help will be provided with treatment, counseling, jobs and shelter.
- Funds made available will be used to improve the city.
- Autoville will monitor the situation to ensure that the money is well spent, and that the situation is improving for the both the city and the unhoused people.
- Understanding the human dimension allows us to evaluate technology that might help – people before systems.



Call for Modelers!!

Reference
Architecture
Input

Solution
Architecture
Development

Interested? Contact us!

Jennifer Russell (Jennifer.Russell@incose.net)

Matthew Hause (on site)

Maria Romero (on site)

- Focus areas

- Unhoused persons
- Rural High-speed internet
- Smart Grids



Smart Cities
Initiative

Find out more and stay in touch...

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