

REFERENCE WORLD INFORMATION SYNTHETIC ENVIRONMENT

**An Agent-based Modeling & Simulation Approach To Help Solve
Wicked Societal Problems**



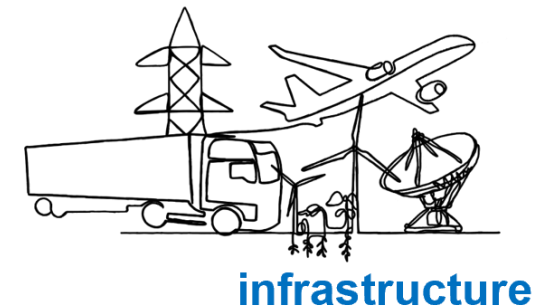
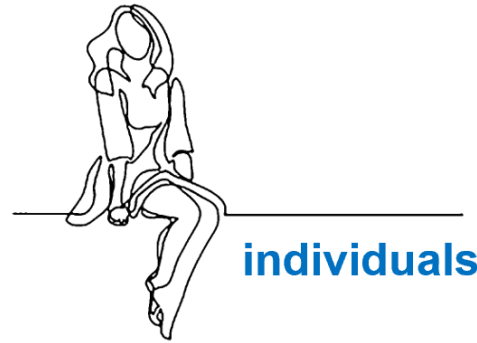
Reference World Information Synthetic Environment - RWISE

- We use state-of-art AI/ML to curate your data
- Then combine your different domains of interest into a single synthetic model that “knows” and “remembers” everything in and across your data sets.
- Our generative AI simulation engine can “imagine” and forecast a baseline future so you can do “What If” analysis into the future for comparison of outcomes.



RWISE captures a holistic view of life

- Capture multiple facets of a person's well being.
- Personalized solutions across diverse demographics.
- Provide demographically driven pathways to prosperity
- Aim to reduce the gaps between desired vs. perceived happiness.



RWISE Approach to Modeling Individuals

RWISE captures a holistic view of life

An increased sense of well being is the fundamental driver of human actions – Kahneman Theory of Well Being

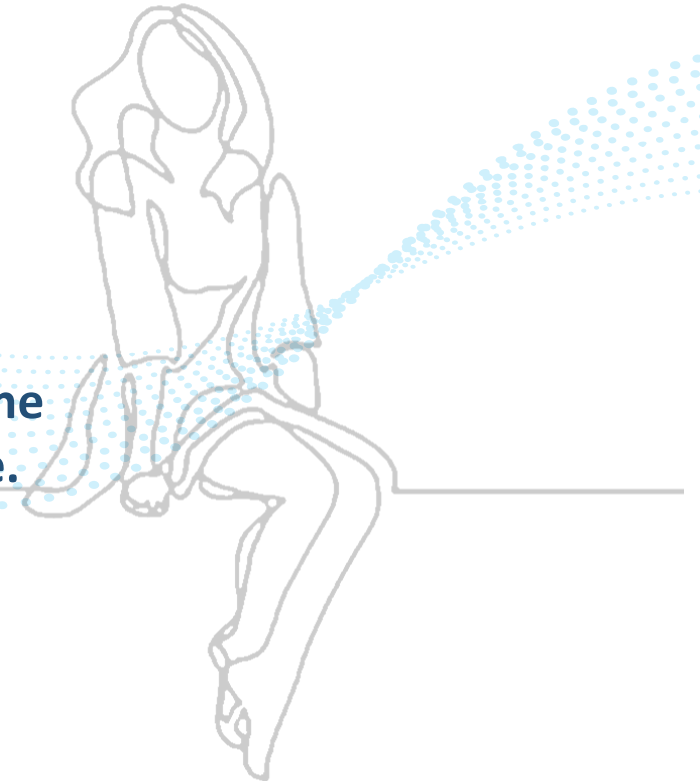
An individual's well-being consists of a composite index of needs

- Basic
- Health
- Financial
- Security
- Political
- Social
- Freedom of Movement
- Educational
- Religious

For each well being index, an individual has a perceived level of where the individual believes s/he is at & a desired level of where s/he wants to be.

Basic needs, security & freedom of movement are universally important.

The relative significance of all other needs are based on individual traits.



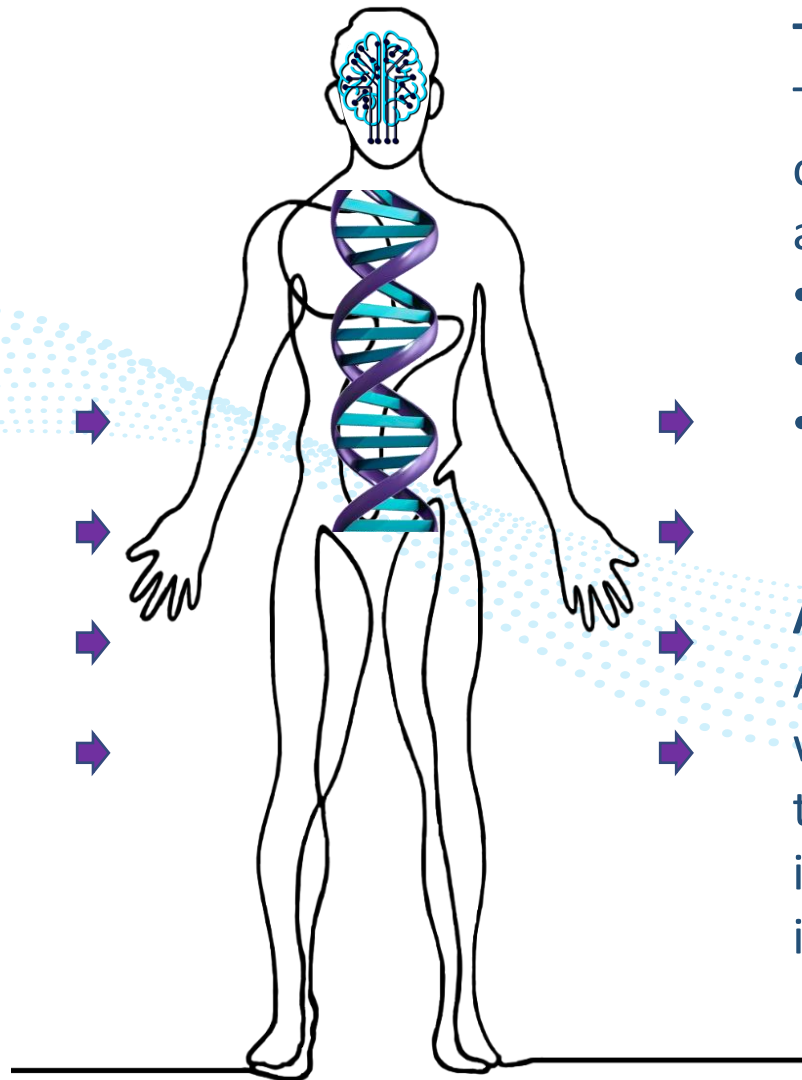
Anatomy of an RWISE Individual

COGNITIVE

- memory
- well being perception & desire
- priorities & activation of goals
- adaptation
- sensor management

SENSORS

Probes through which an individual retrieves information from the RWISE virtual world.



TRAITS

Typically 1024 characteristics of an individual

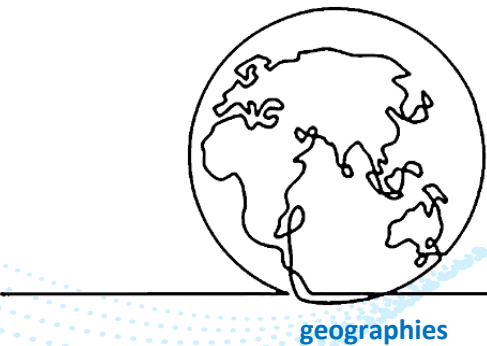
- demographics
- behavioral
- physiological

ACTIONS

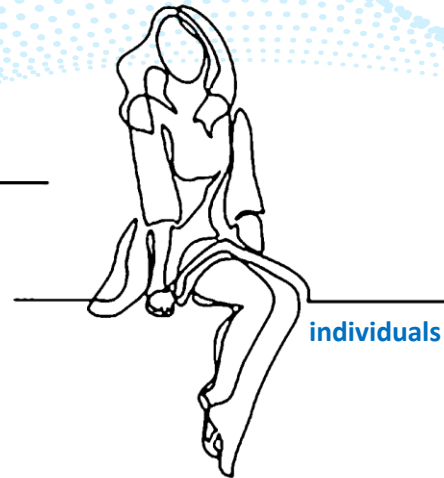
Actions one individual within the RWISE world takes on its environment & interactions with other individuals.

RWISE Approach to Modeling Societies

Perform AI/ML Enriched Agent Based Modeling & Simulation



1 GEOGRAPHIC LOCATION of Individuals, Organizations, Institutions and Infrastructure



2 INDIVIDUALS are continuously working to achieve their desired level of wellbeing



3 ORGANIZATIONS provide communications, employment, goods and services



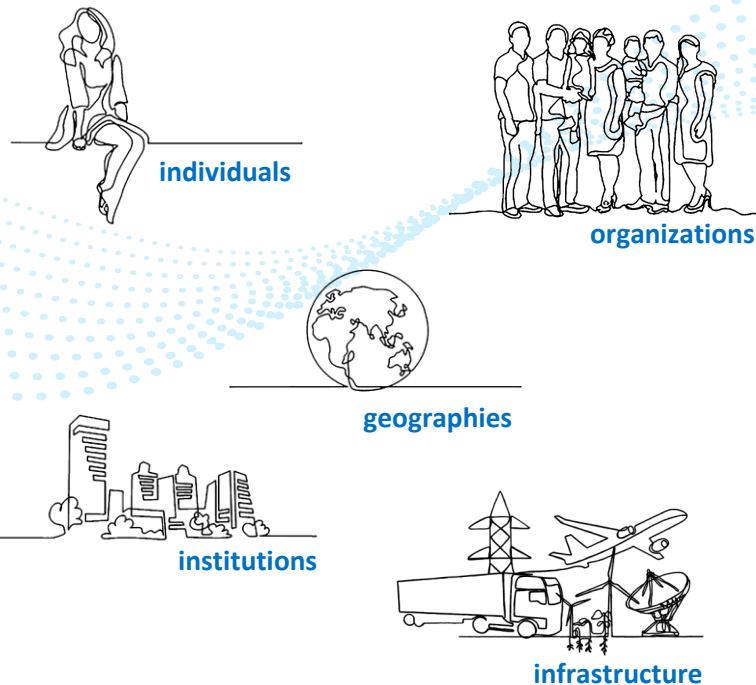
4 INSTITUTIONS provide policy and laws to promote the common good



5 INFRASTRUCTURE provides the means to generate and consume resources

Modeling & Simulation to Empower Data Driven Insights

Perform AI/ML Enriched Agent Based Modeling & Simulation



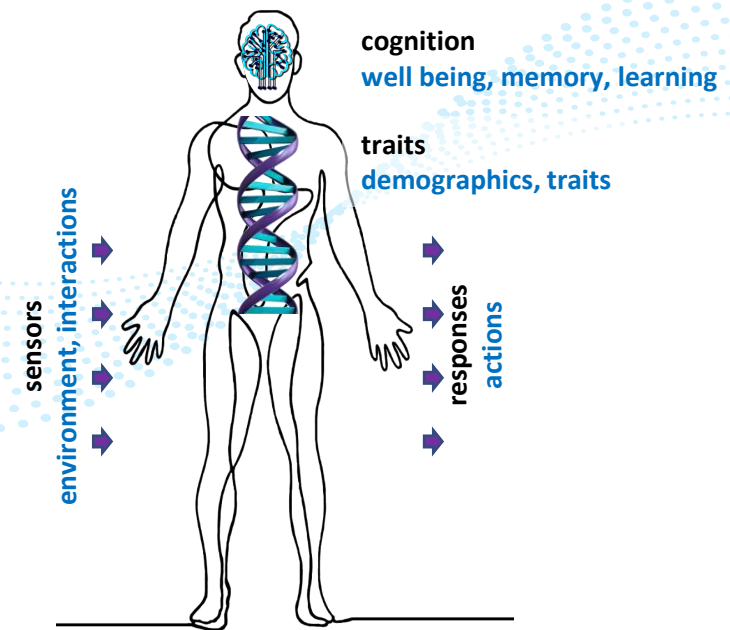
Use structured & unstructured data from diverse sources to characterize entities that make up society.

Populate a synthetic world with cognitively & socially sophisticated agents.

Agents continuously respond to & act on external signals or environmental changes.

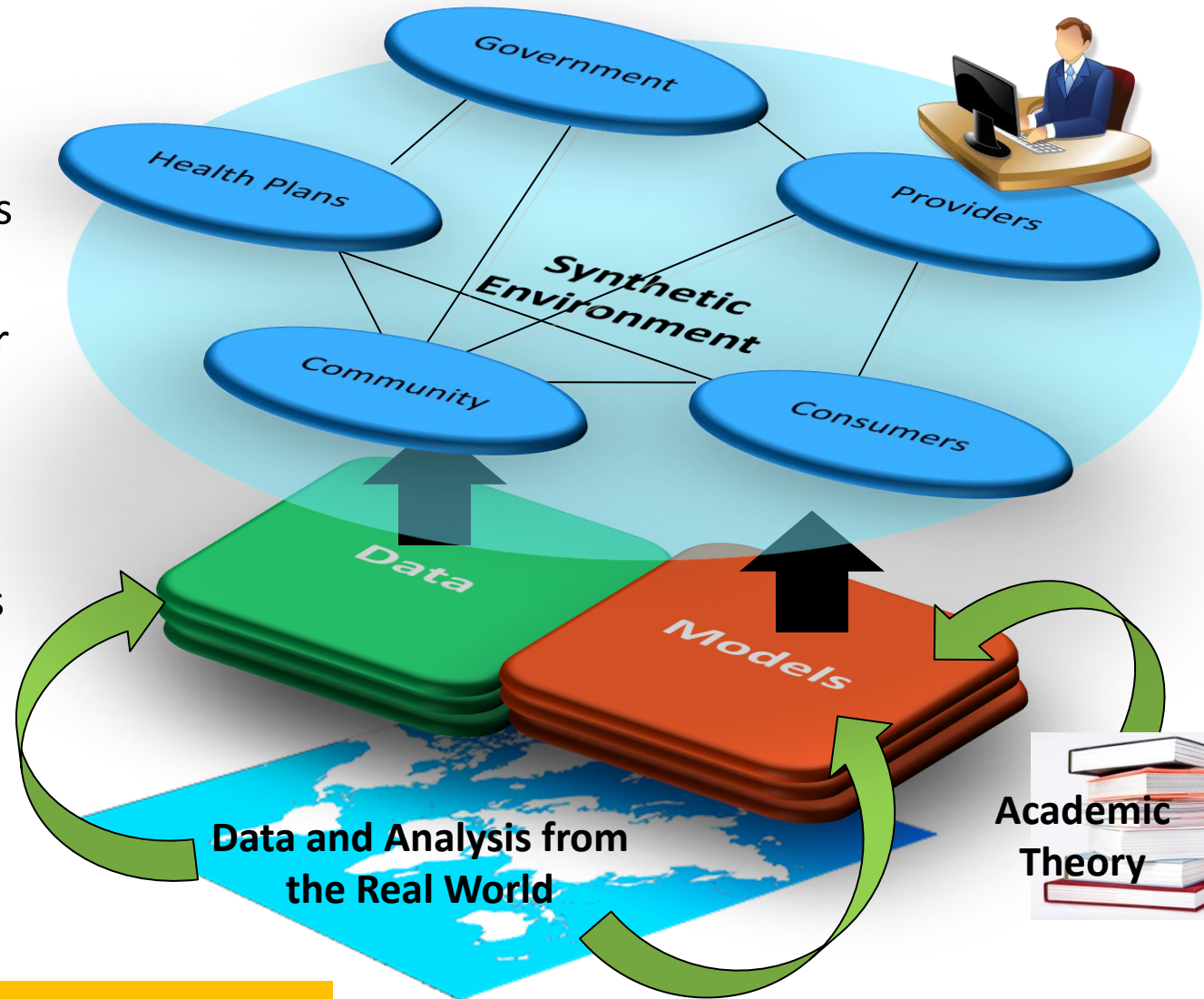
Use multi-sided gaming to forecast a baseline & societal changes due to intervention plans.

Allows new patterns of behavior to emerge using both deductive & inductive logic.



RWISE for Health

- Fuse models and data
- Capture behavior and influences for key players
- Allow users to experiment as any player
- Generate transparent, supportable, projected outcomes
- RWISE framework allows for readily configurable synthetic environment



Comprehensive Representation from the Bottom-Up



What we've already learned about education

- National Policies have limited impacts. Work must also be done at the community level where efforts are more responsive.
- Community assets, including NGOs, are seldom well coordinated in their local efforts. Gaps in social support across the community are normal.
- Policies have a limited useful life. After pent up demand is satisfied, demand regresses toward a slightly elevated “new normal.”
- Integrating with social media boosts effectiveness of policies and local action effectiveness.
- Low income is generally a greater barrier than race or ethnicity.
- School “warmth” makes a big difference in outcomes.
- Basic needs (safety, food, shelter), health, education, and employment opportunity drive life’s basic prosperity.

