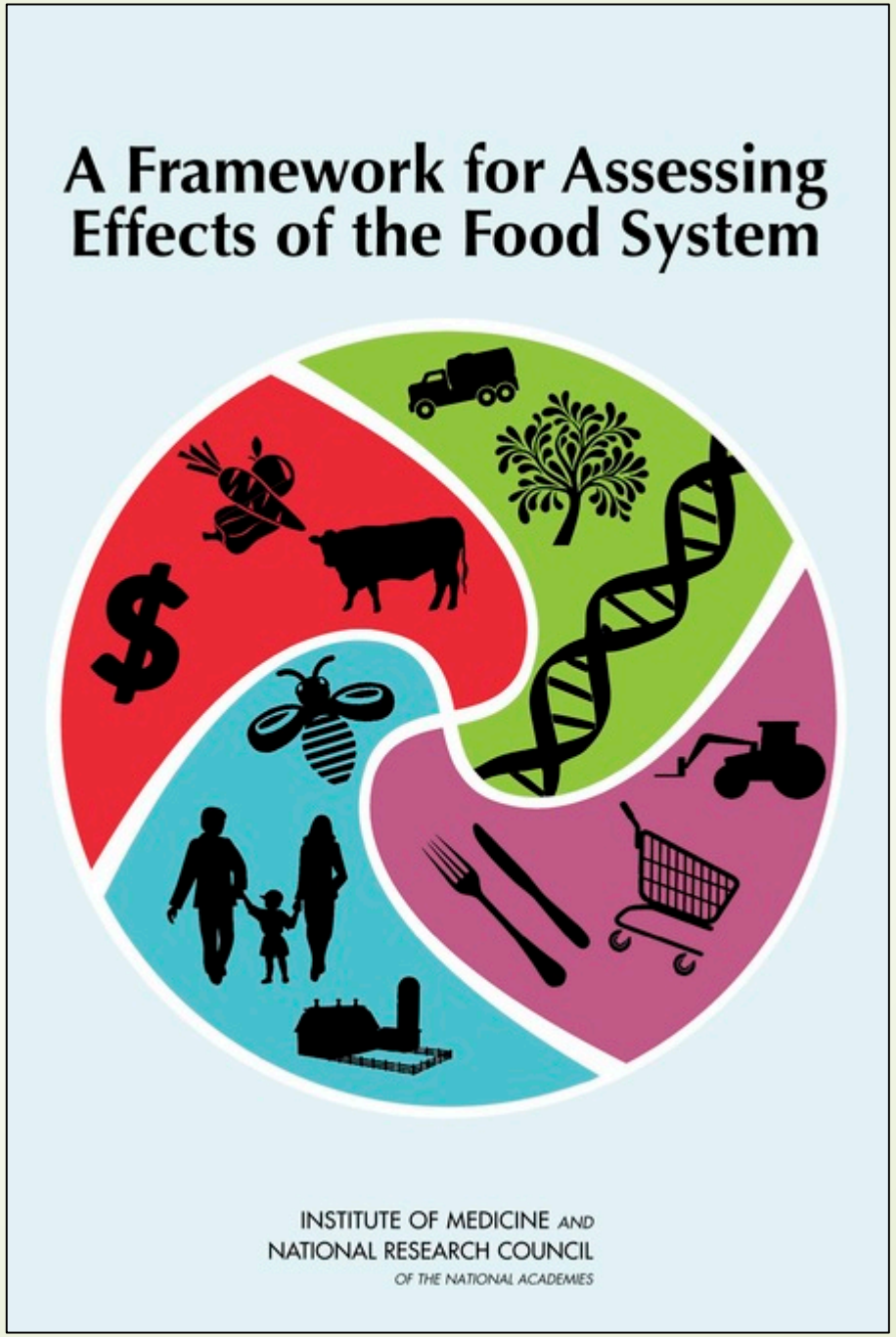
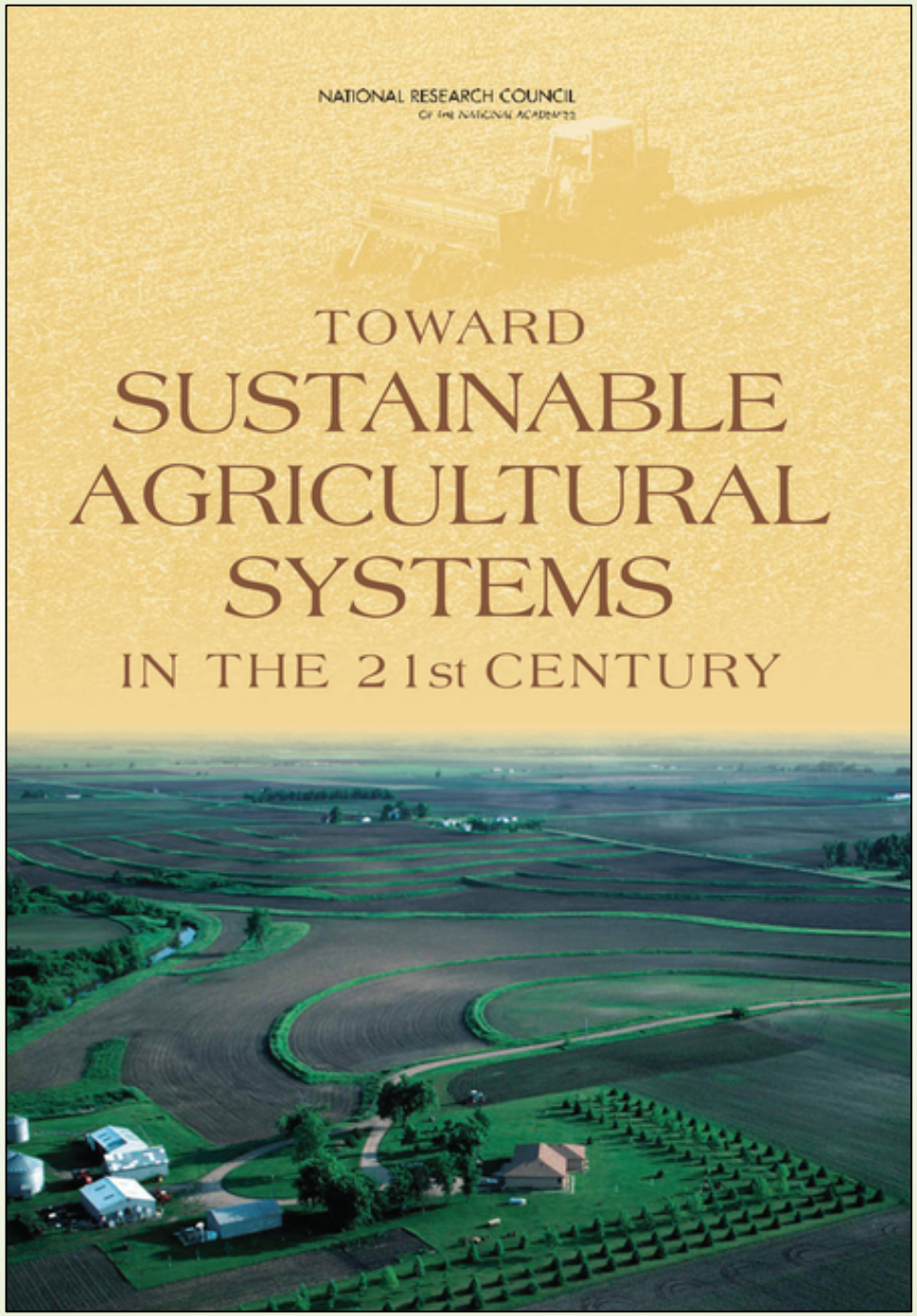
The Usefulness of Systems Approaches in Addressing Food Systems Innovations

Presented by Kate Clancy

Food Forum Workshop

August 7, 2019

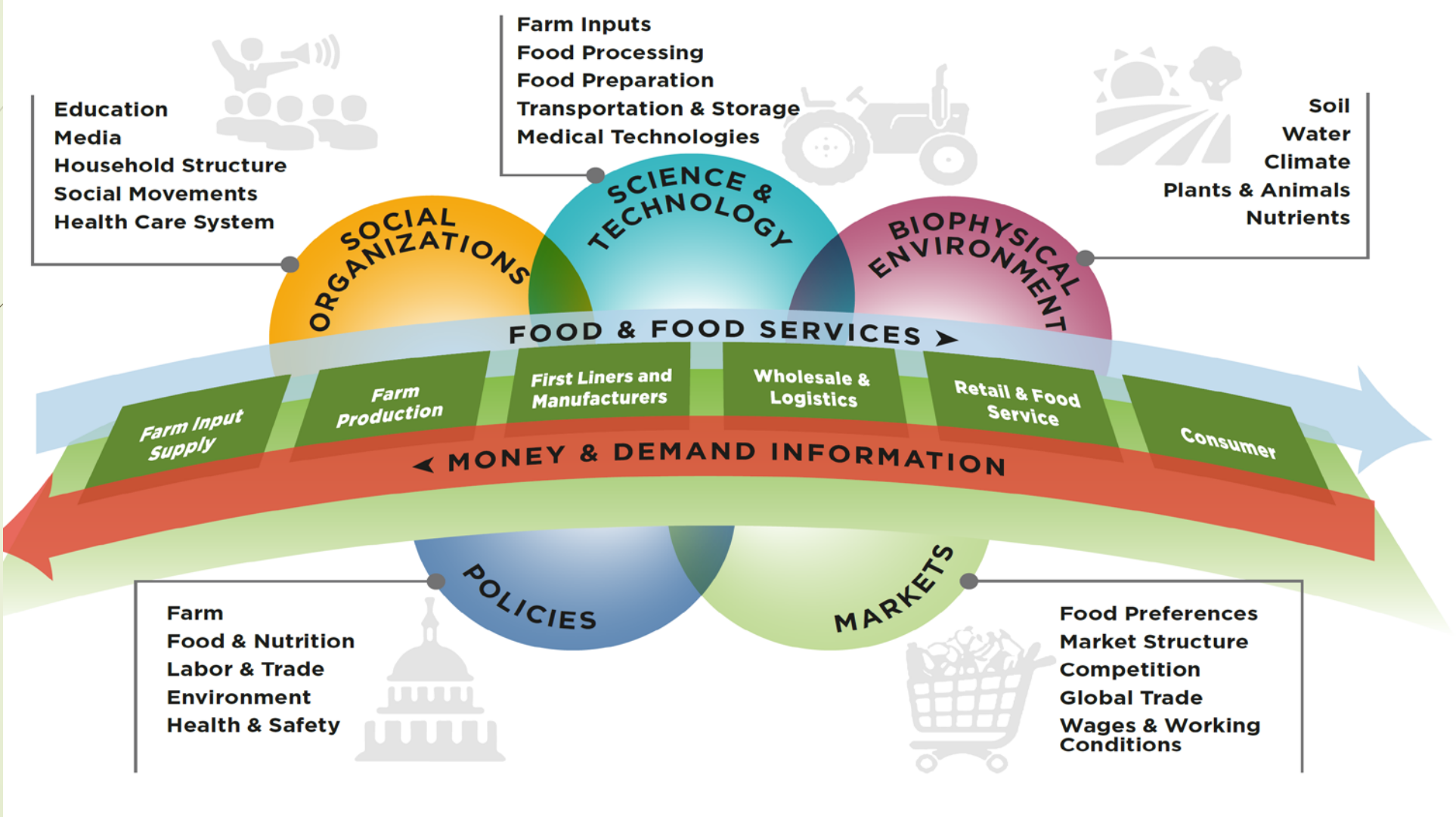

A Framework for Assessing Effects of the Food System
INSTITUTE OF MEDICINE AND
NATIONAL RESEARCH COUNCIL
OF THE NATIONAL ACADEMIES


NATIONAL RESEARCH COUNCIL
TOWARD
SUSTAINABLE
AGRICULTURAL
SYSTEMS
IN THE 21st CENTURY

"The transformative approach to improving agricultural sustainability…would facilitate the adoption of production approaches that capitalize on synergies, efficiencies, and resilience characteristics associated with complex natural systems and their linked social, economic, and biophysical systems."

(Source: *Toward Sustainable Agricultural Systems in the 21st Century*. National Research Council, 2010.)

The food system



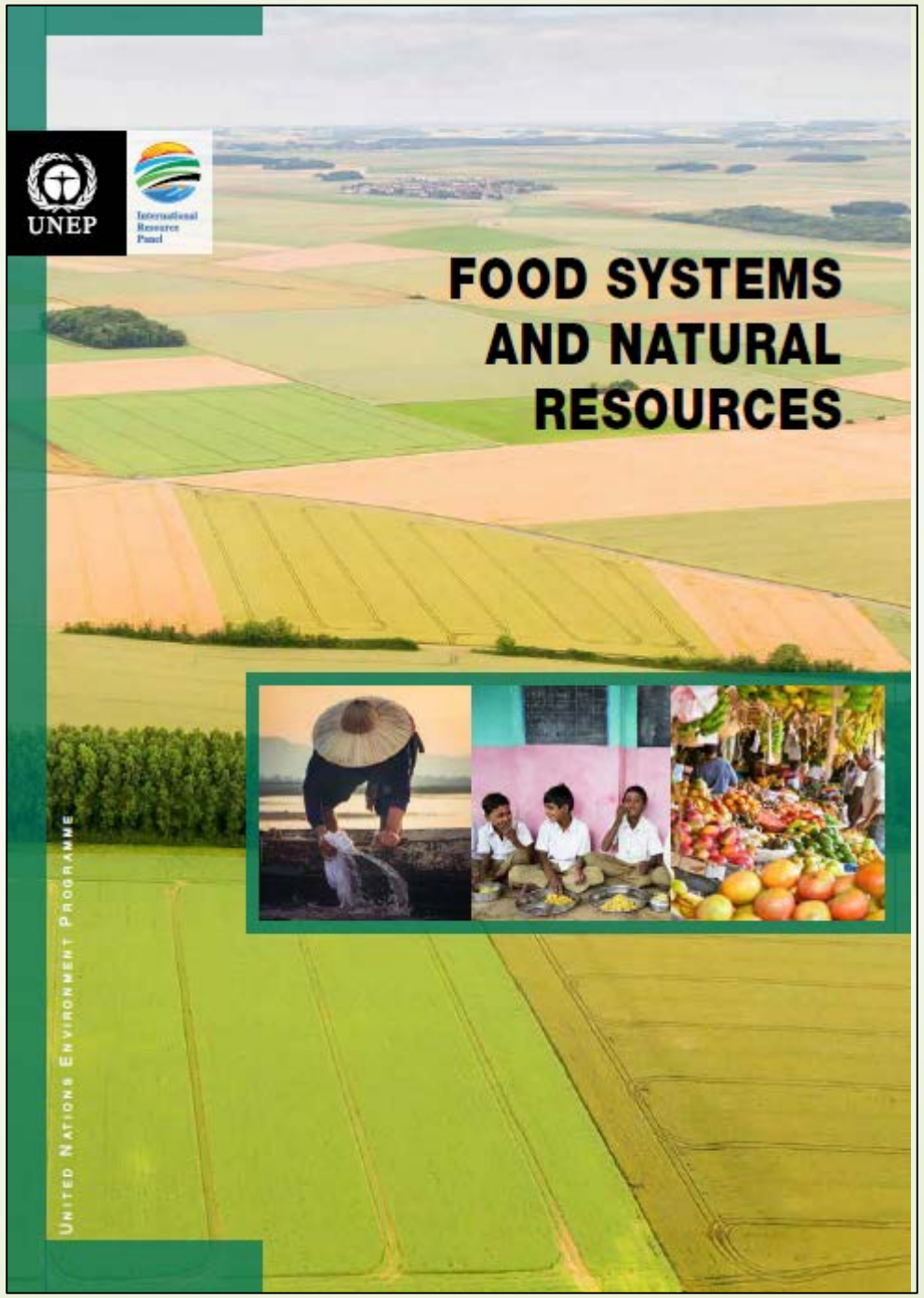
Systems thinking – what is it?

- “A set of synergistic analytic skills used to improve the capability of identifying and understanding systems” (Arnold & Wade, 2015)
- A sensitivity to the circular nature of the world
- An awareness of the role of structure in creating the conditions we face
- A recognition that there are powerful laws of systems of which we are unaware
- A realization that there are consequences to actions of which we are oblivious

(Source: Goodman, 2018)

Systems thinking – why use it?

- Requires more logical and comprehensive thinking about the structure and function of a system
- Replicates the real world to better understand its complexity
- Expands range of choices for solving problems
- Anticipates the impacts of trade-offs
- Recognizes that there are no perfect solutions


UNEP
International Resource Panel
FOOD SYSTEMS AND NATURAL RESOURCES
United Nations Environment Programme

Contributions of a food systems approach

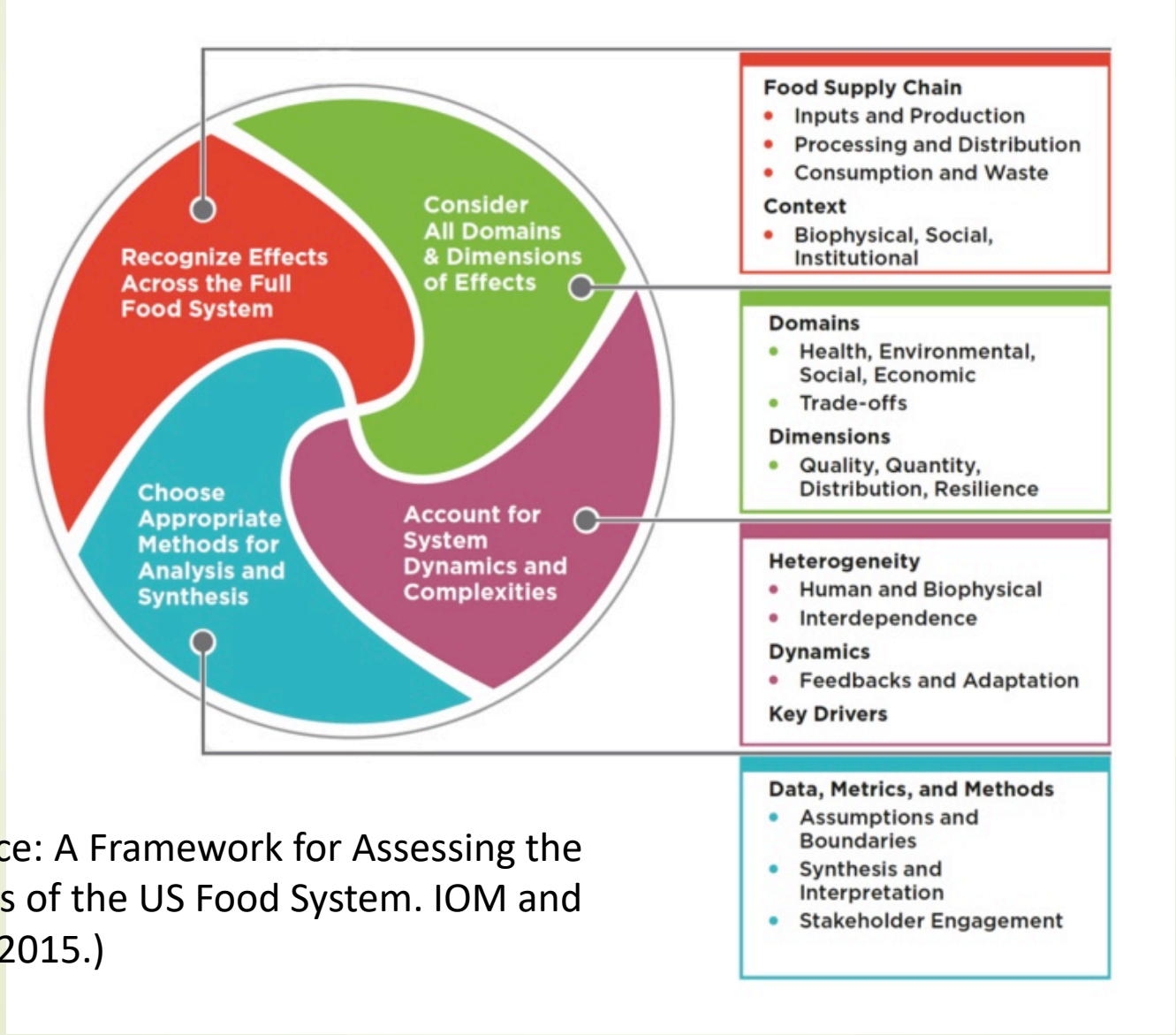
- Shows options for a more efficient use of natural resources
- Lifts up the central role of a system's socio-economic context
- Demonstrates the implications of food systems for health and malnutrition
- Illuminates the trade-offs between different intervention strategies
- Brings to light non-linear processes and feedback loops in a food system

(Source: van Berkum, Dengerink and Ruben, 2018)

Systems approaches can:

- Anticipate unintended consequences and time-delayed effects.
- Make predictions
- Target intervention points more readily
- Identify workable policies through more concrete evidence on where to intervene

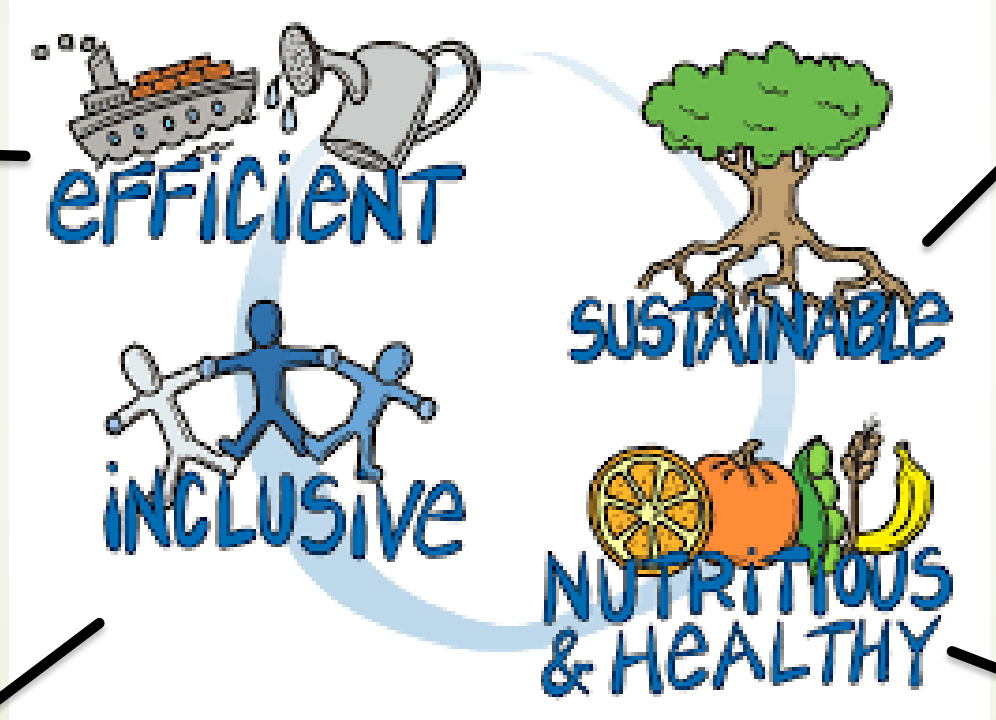
Systems thinking – how to use it?



(Source: A Framework for Assessing the Effects of the US Food System. IOM and NRC. 2015.)

World Economic Forum:
Shaping the future of global food systems

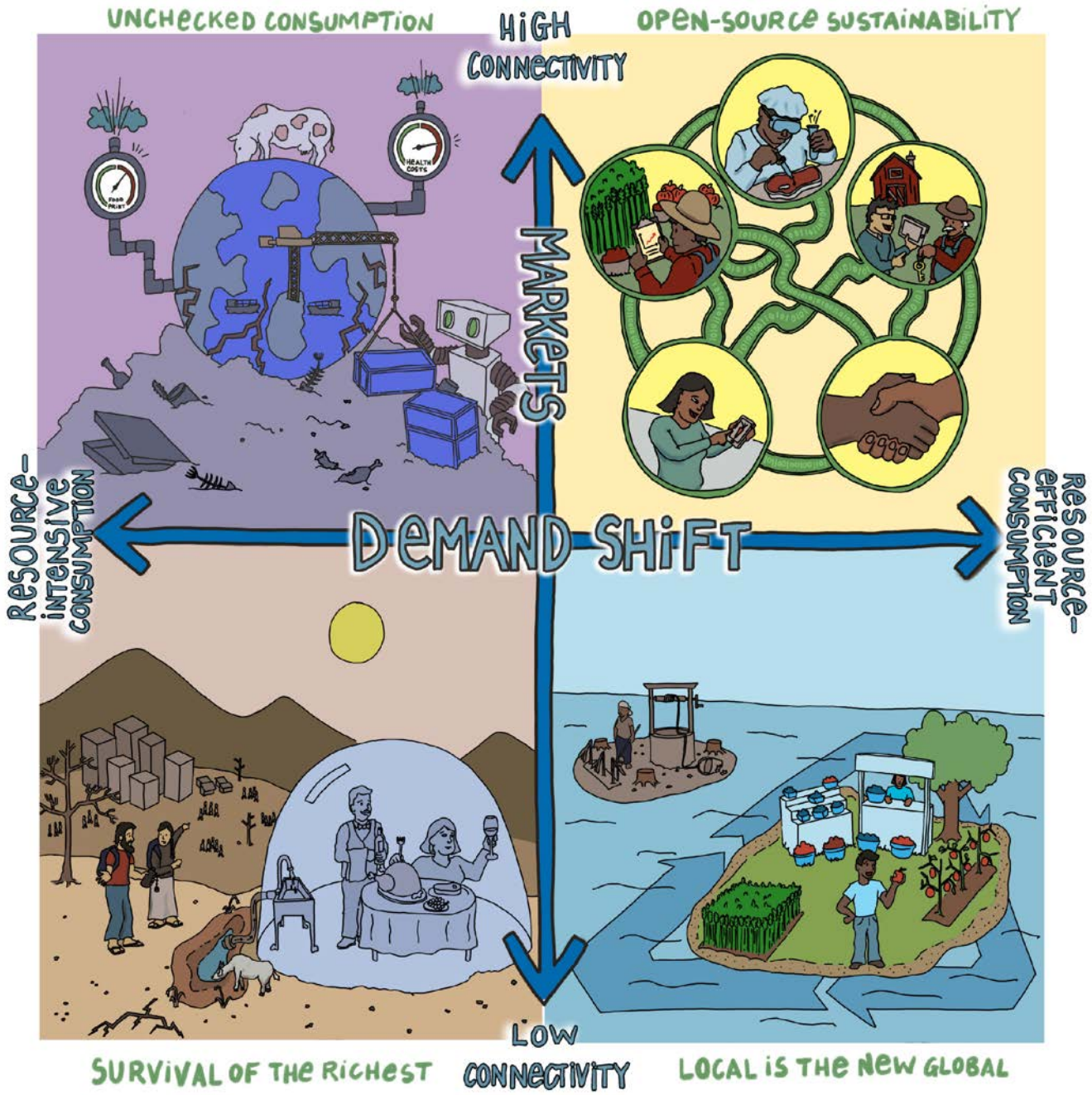
Producing adequate quantities of food and minimizing loss and waste



Minimizing negative environmental impacts, conserving natural resources, and strengthening resiliency

Ensuring economic and social inclusion for all food system actors

Providing and promoting consumption of diverse nutritious and safe foods for a healthy diet



(Source: World Economic Forum, 2017)

Feeding Prometheus

- “Liberating the world from an unsustainable global food system”
- A new paradigm for the sustainability of food systems at all levels
- Four foci:

  1. Agricultural ecology – designing agroecosystems based on ecological science

  2. Equity issues – resolving the dilemma of scarcity within abundance

  3. Cultural dimensions – a reduction in food diversity and of some cultures themselves is a crisis of democracy

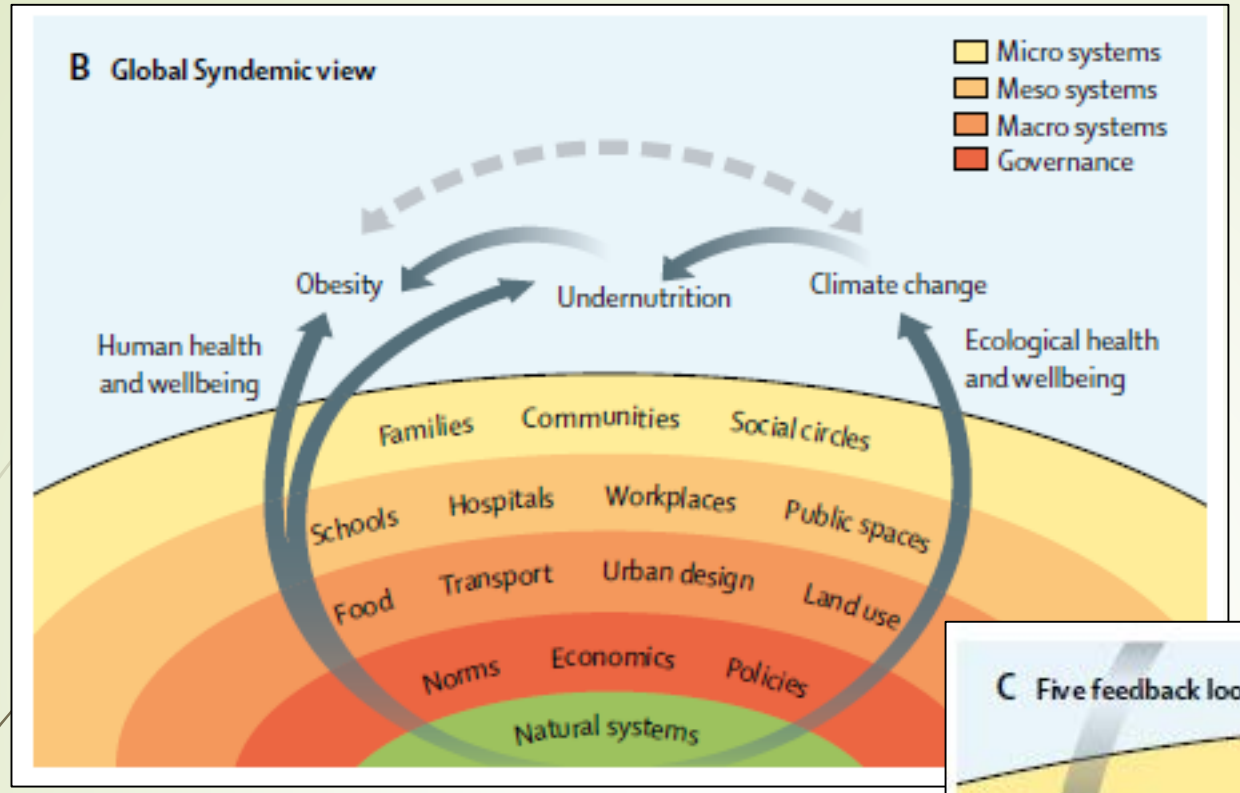
  4. Linking global public health to the type, quality, and availability of food

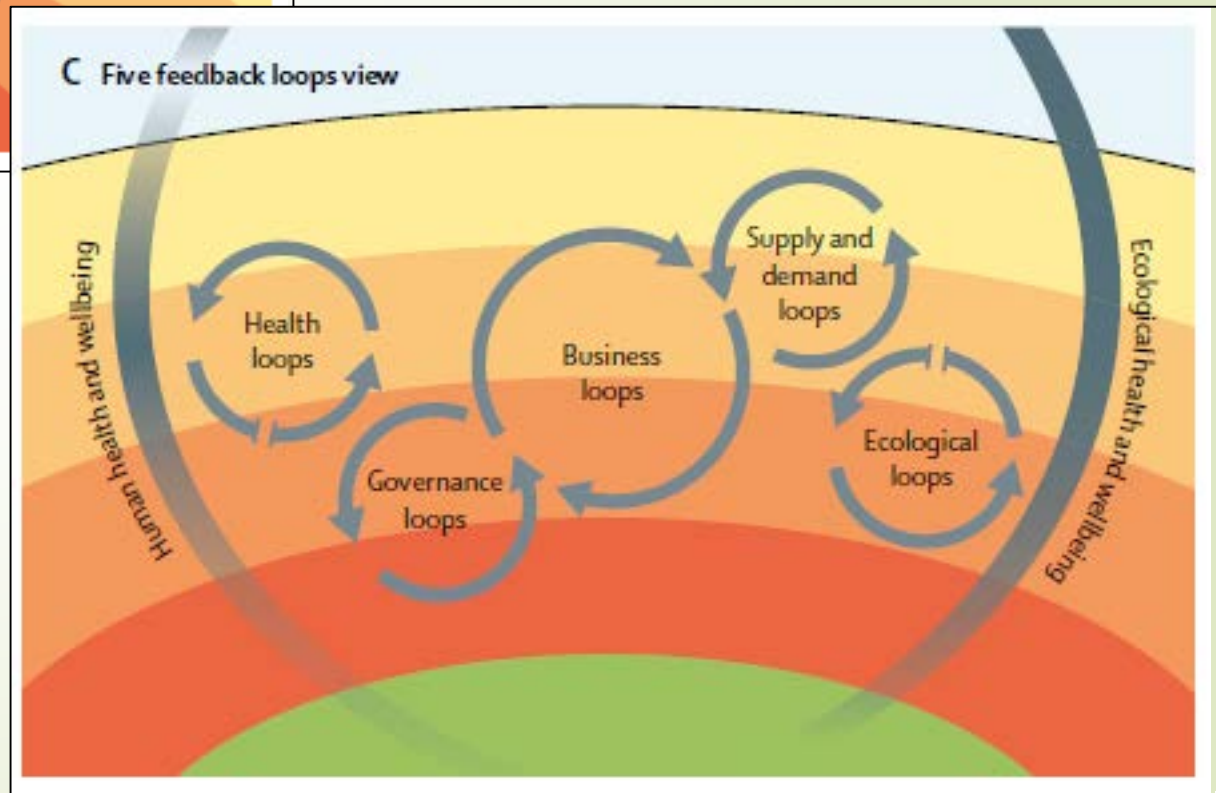
(Source: Vandermeer et al., 2018)

Resilient food systems and strategies for transforming to them

- Addressing issues of gender equity and social justice that shape food access
- Adopting integrated agro-ecological approaches to produce more food with reduced environmental impacts
- Supporting more regionally organized food systems
- Embedding access to healthy and culturally relevant foods within production policies

(Source: Schipanski et al., 2016)

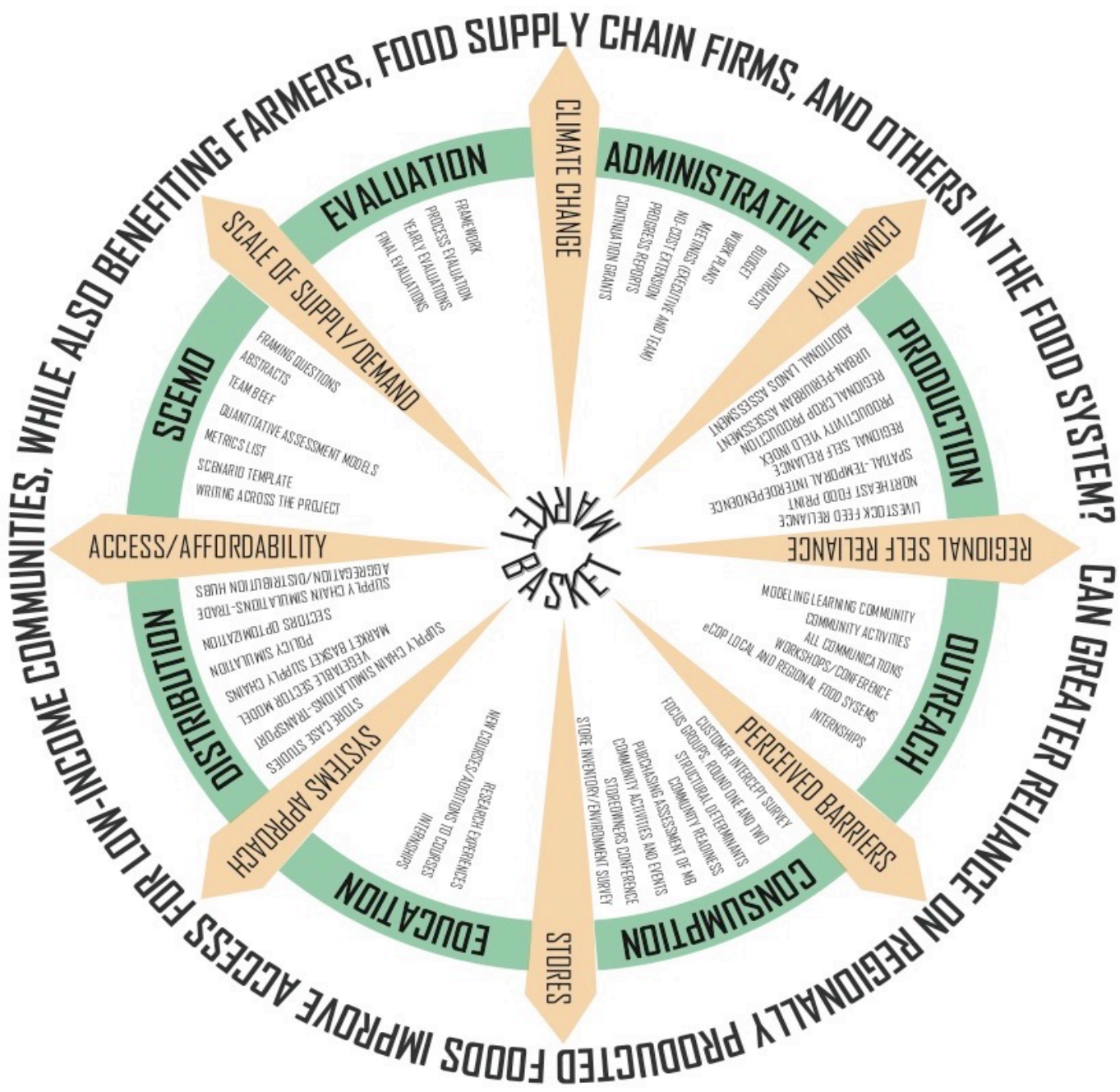




(Source: Swinburn et al., The Lancet, 2019)


NORTHEAST IOWA
Food & Fitness
INITIATIVE


Rural Study Sites
Metro Study Sites
The UNIVERSITY of VERMONT
Northeast Sustainable Agriculture Working Group
Tufts UNIVERSITY
PENNSTATE
NE RCRD
COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK
DelawareState University
Making our mark on the world
USDA
JOHNS HOPKINS BLOOMBERG SCHOOL of PUBLIC HEALTH
WEST VIRGINIA STATE UNIVERSITY


CAN GREATER RELIANCE ON REGIONALLY PRODUCED FOODS IMPROVE ACCESS FOR LOW-INCOME COMMUNITIES, WHILE ALSO BENEFITING FARMERS, FOOD SUPPLY CHAIN FIRMS, AND OTHERS IN THE FOOD SYSTEM?
MARKET BASKET
CLIMATE CHANGE
ADMINISTRATIVE
CONTRACTS
BUDGET
WORK PLANS
MEETINGS
NP COST EXTENSION
PROGRESS REPORTS
CONTINUATION GRANTS
COMMUNITY
PRODUCTION
LIVESTOCK FEED RELIANCE
NORTHEAST FOOD PRINT
SPATIAL-TEMPORAL INTERDEPENDENCE
REGIONAL SELF RELIANCE INDEX
PRODUCTIVITY YIELD INDEX
REGIONAL CROP PRODUCTION
URBAN-PERIURBAN ASSESSMENT
ADDITIONAL LANDS ASSESSMENT
REGIONAL SELF RELIANCE
OUTREACH
MODELING LEARNING COMMUNITY
COMMUNITY ACTIVITIES
ALL COMMUNICATIONS
WORKSHOPS/CONFERENCE
eCOP LOCAL AND REGIONAL FOOD SYSEMS
INTERNSHIPS
PERCEIVED BARRIERS
CUSTOMER INTERCEPT SURVEY
FOCUS GROUPS ROUND ONE AND TWO
STRUCTURAL DETERMINANTS
COMMUNITY READINESS
PURCHASING ASSESSMENT OF MB
COMMUNITY ACTIVITIES AND EVENTS
STOREOWNERS CONFERENCE
STORE INVENTORY/ENVIRONMENT SURVEY
CONSUMPTION
STORES
EDUCATION
NEW COURSES ADDITIONS TO COURSES
RESEARCH EXPERIENCES
INTERNSHIPS
SYSTEMS APPROACH
STORE CASE STUDIES
SUPPLY CHAIN SIMULATIONS-TRANSPORT
MARKET BASKET SUPPLY CHAINS
VEGETABLE SECTOR MODEL
POLICY SIMULATION
SECTORS OPTOMIZATION
SUPPLY CHAIN SIMULATIONS-TRADE
AGGREGATION/DISTRIBUTION HUBS
DISTRIBUTION
ACCESS/AFFORDABILITY
SCALE OF SUPPLY/DEMAND
SCEMO
FRAMING QUESTIONS
ABSTRACTS
TEAM BEEF
QUANTITATIVE ASSESSMENT MODELS
METRICS LIST
SCENARIO TEMPLATE
WRITING ACROSS THE PROJECT
EVALUATION
FRAMEWORK
PROCESS EVALUATION
YEARLY EVALUATIONS
FINAL EVALUATIONS

Interdisciplinary research

"Studies undertaken by scholars from two or more distinct scientific disciplines. Research based on a conceptual model that integrates theoretical frameworks, uses study designs and methods not limited to one field, and requires the use of perspectives and skills of the involved disciplines throughout multiple phases of the research process."

(Source: Aboelela et al., 2007)

Benefits of ID research

- Develop more creative ideas
- Generate new questions, stimulate new approaches
- New learning across fields; harnessing differences; trust; boundary setting; communication skills

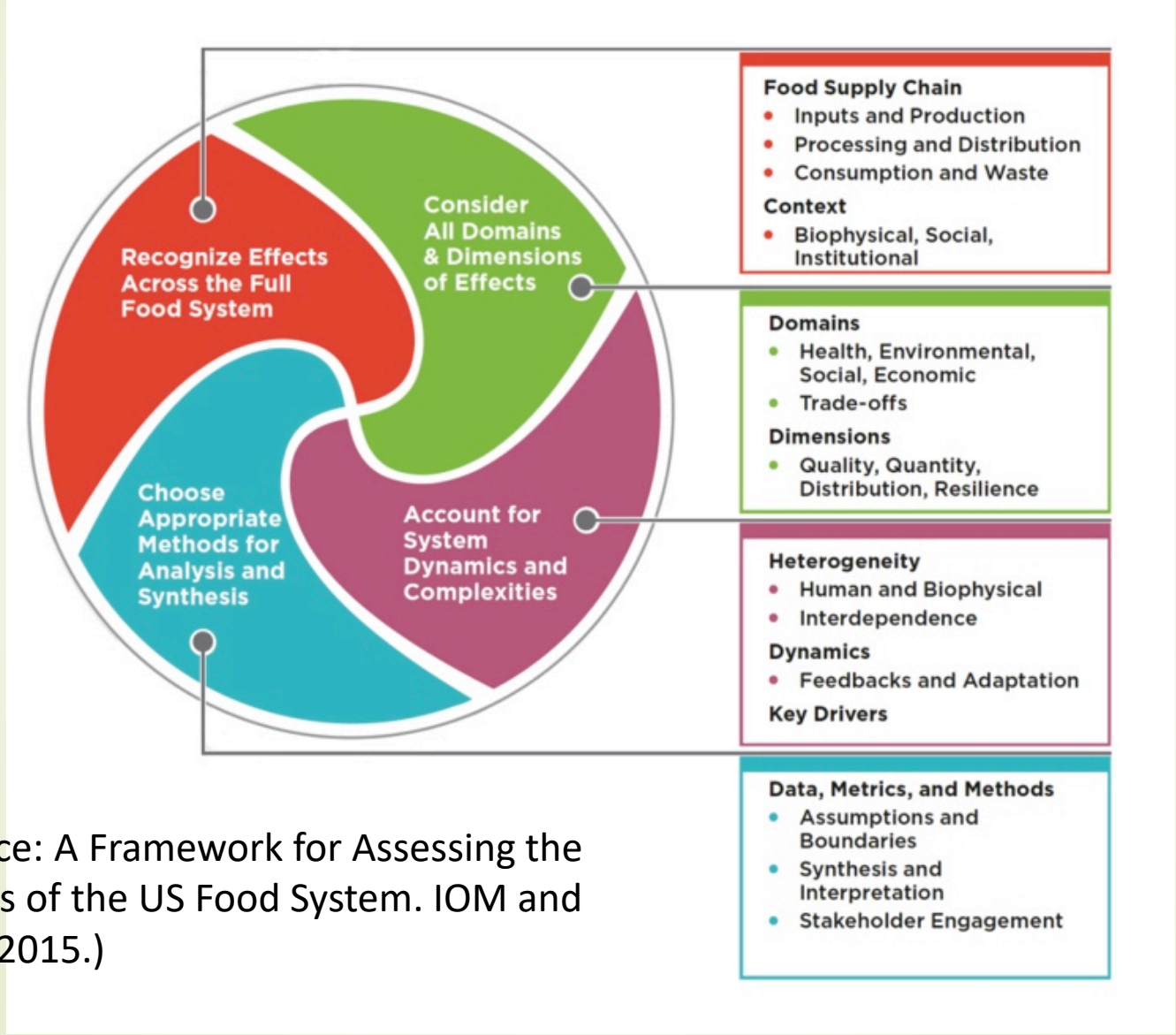
Challenges to ID research

- Substantial transaction costs
- Different paradigms and epistemologies – biophysical scientists vs. social scientists
- Arguments that ID research delays careers
- 5 or more years before team publishes joint research
- Need specific skills and competencies, including some experienced collaborators

More challenges to ID research

- Other critical factors for success or failure, such as the institutional context and the organization of collaboration
- Each point of view must be part of a wider perspective – disciplines must be linked
- Need to bridge research, policy, and practice

Systems thinking – how to use it?



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