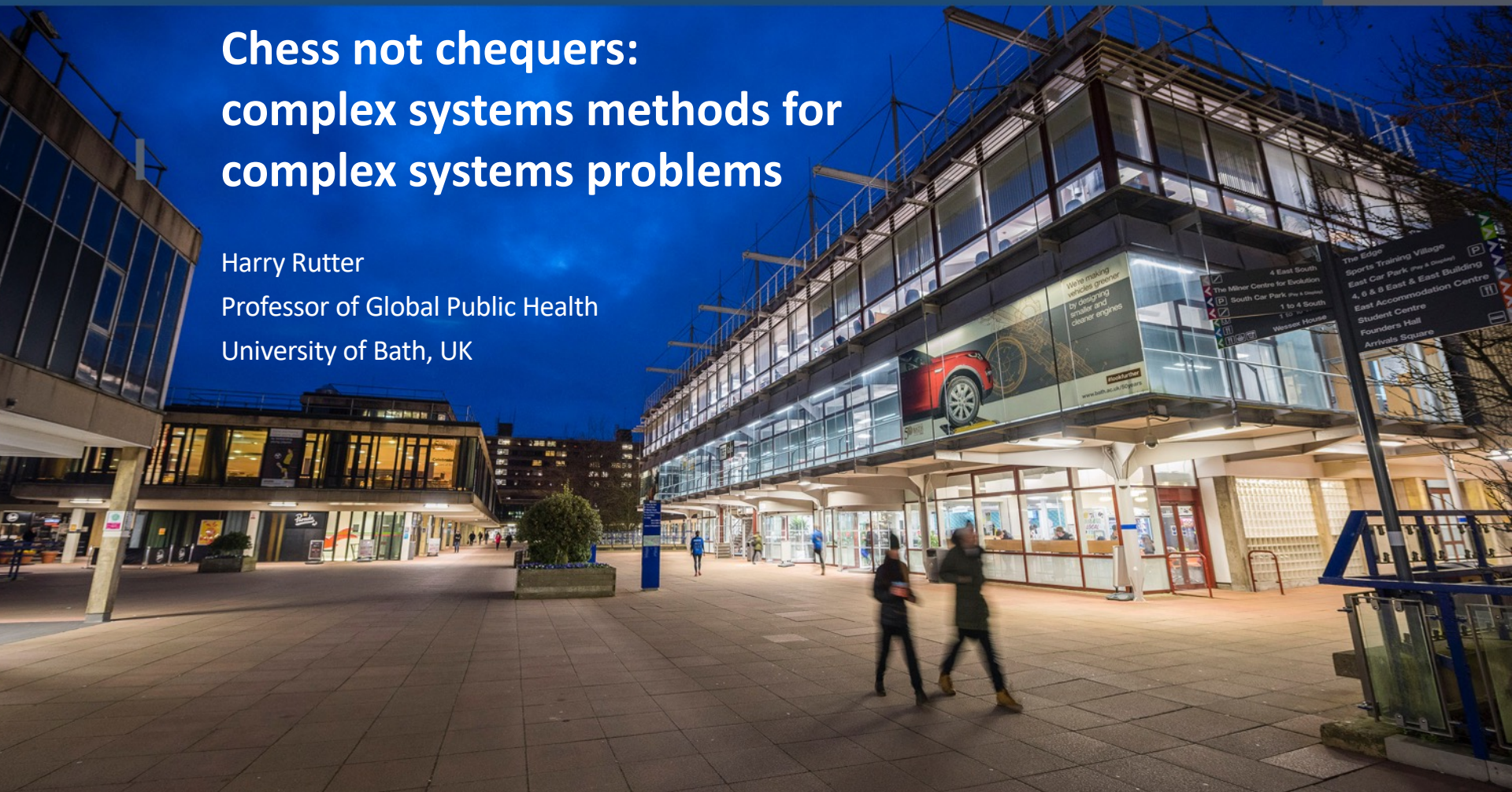


# Chess not chequers: complex systems methods for complex systems problems

Harry Rutter

Professor of Global Public Health

University of Bath, UK

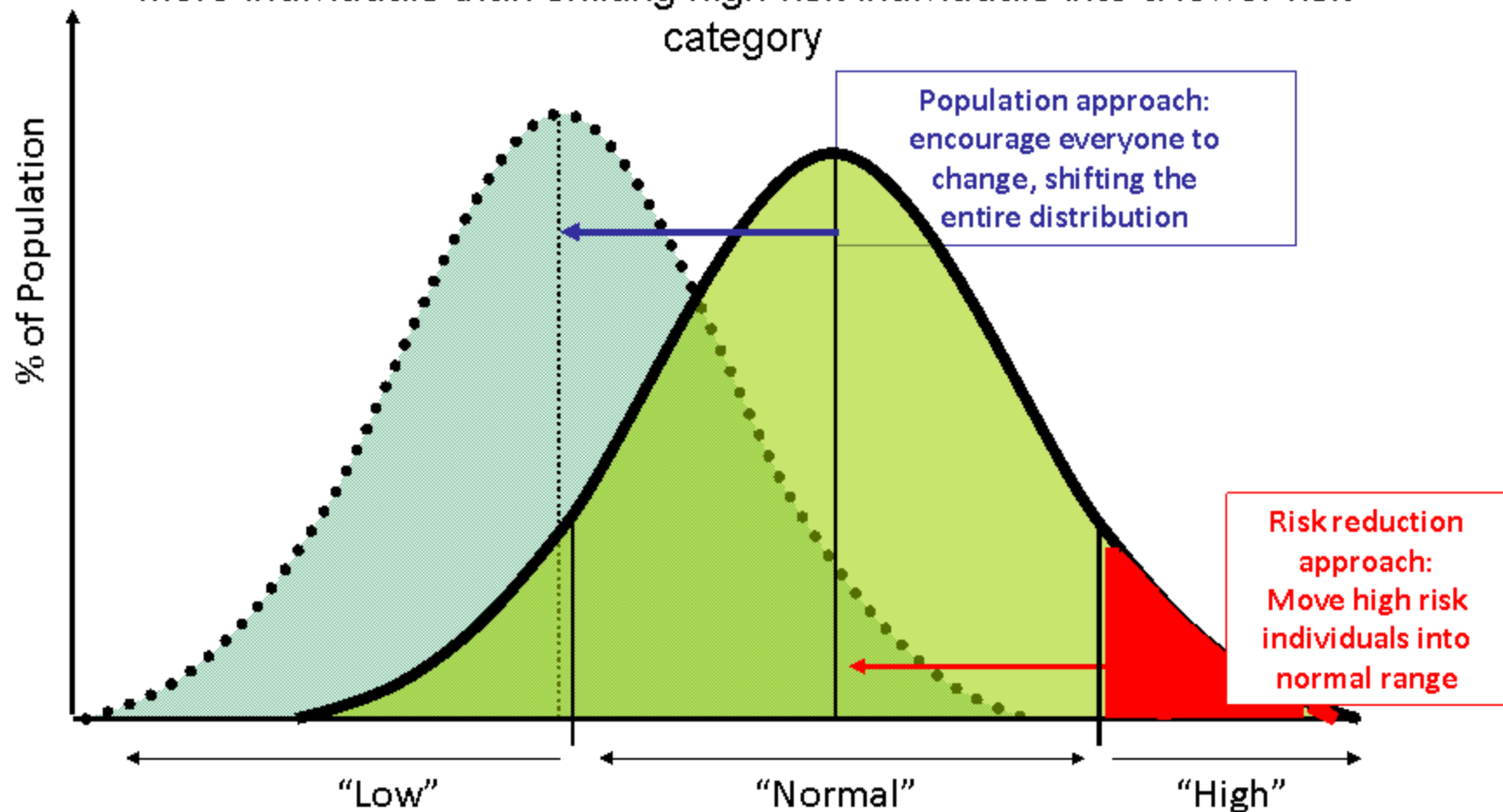


*This presentation is done in total independence from the event organisers*

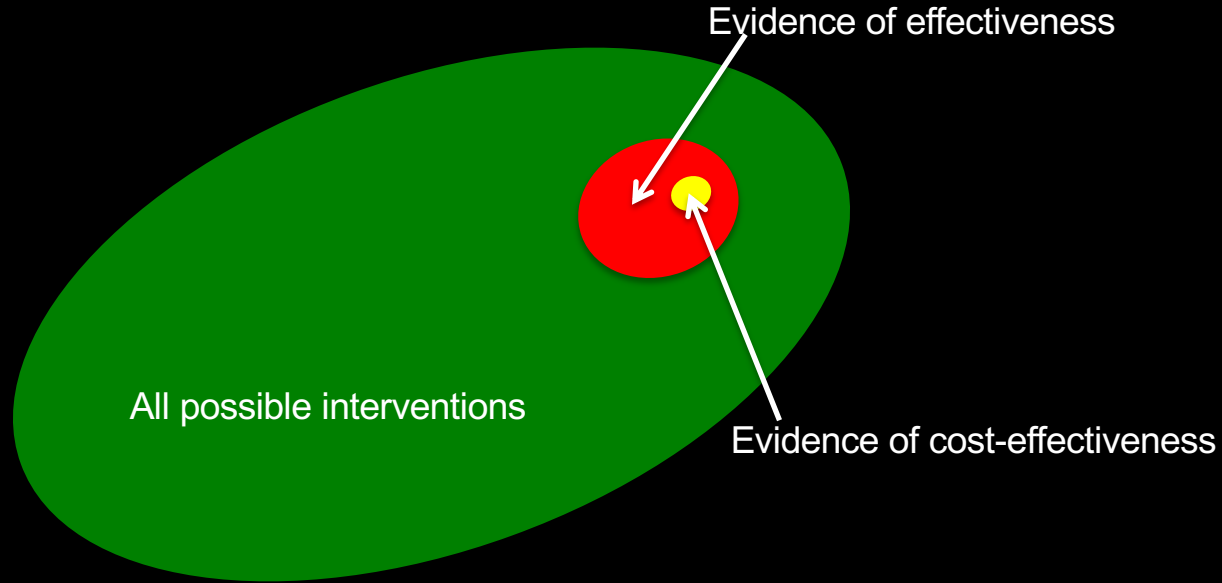
*I have no conflict of interest to declare regarding the current presentation*

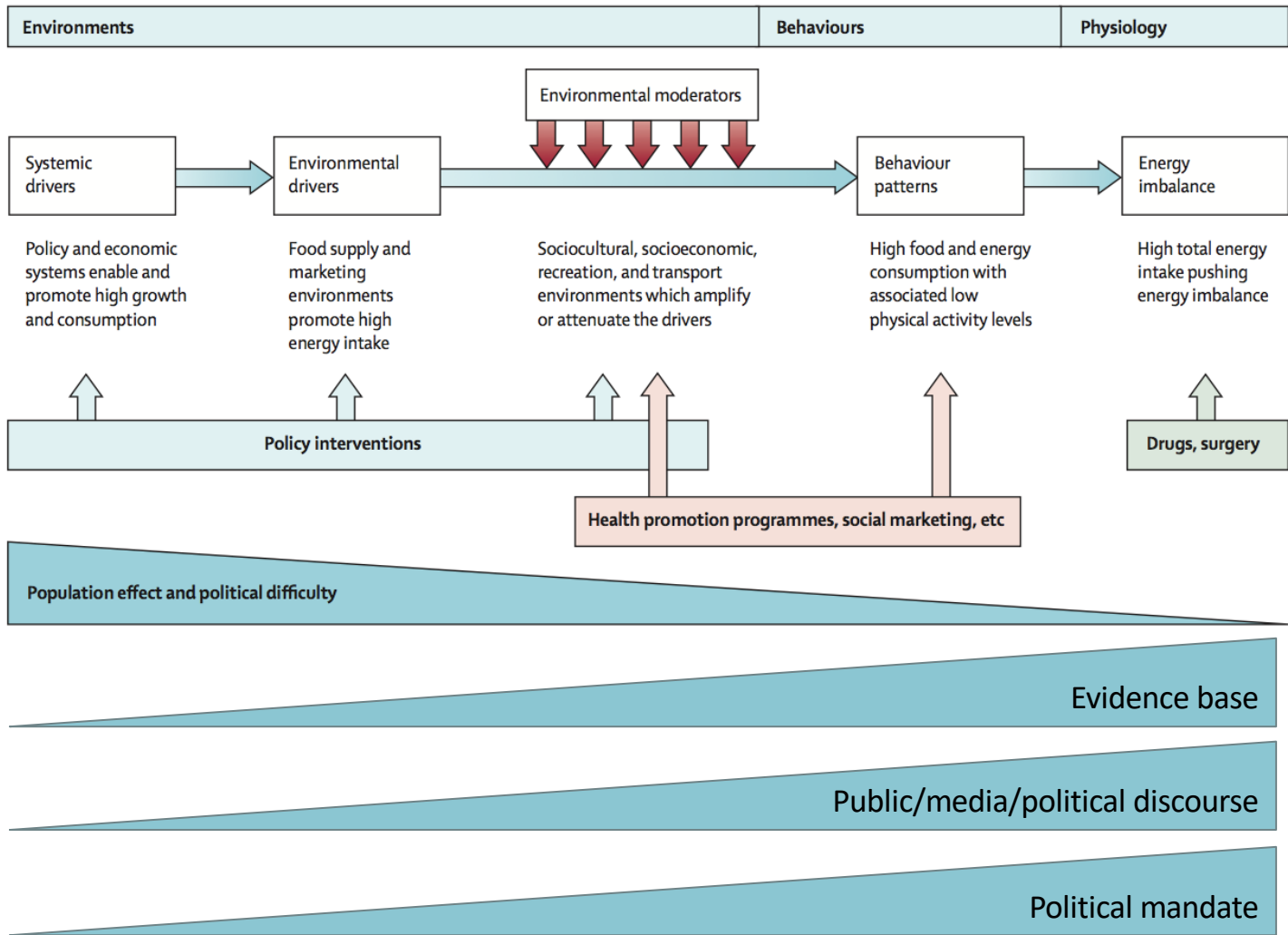
Evidence

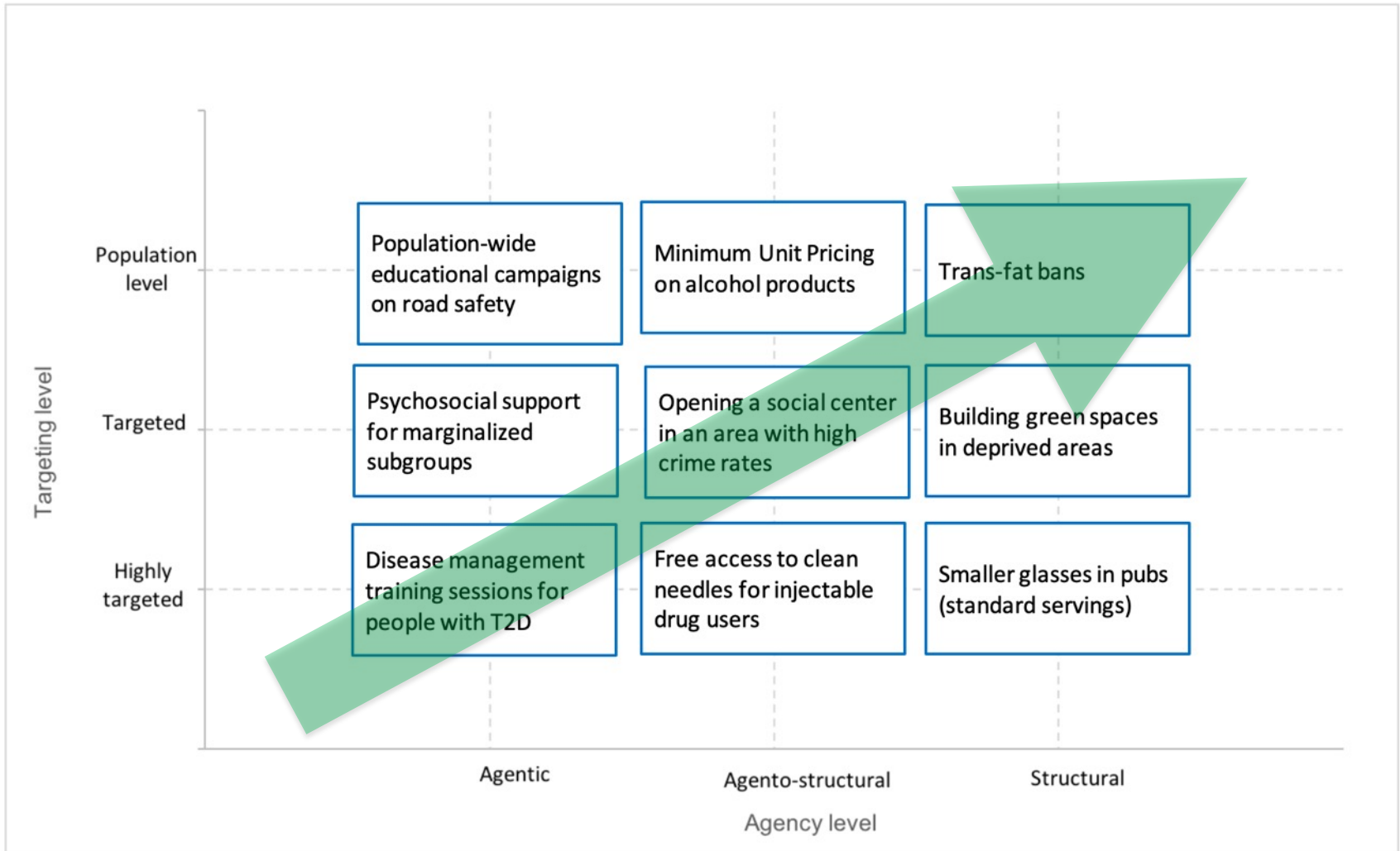
Shifting the whole population into a lower risk category benefits more individuals than shifting high risk individuals into a lower risk category

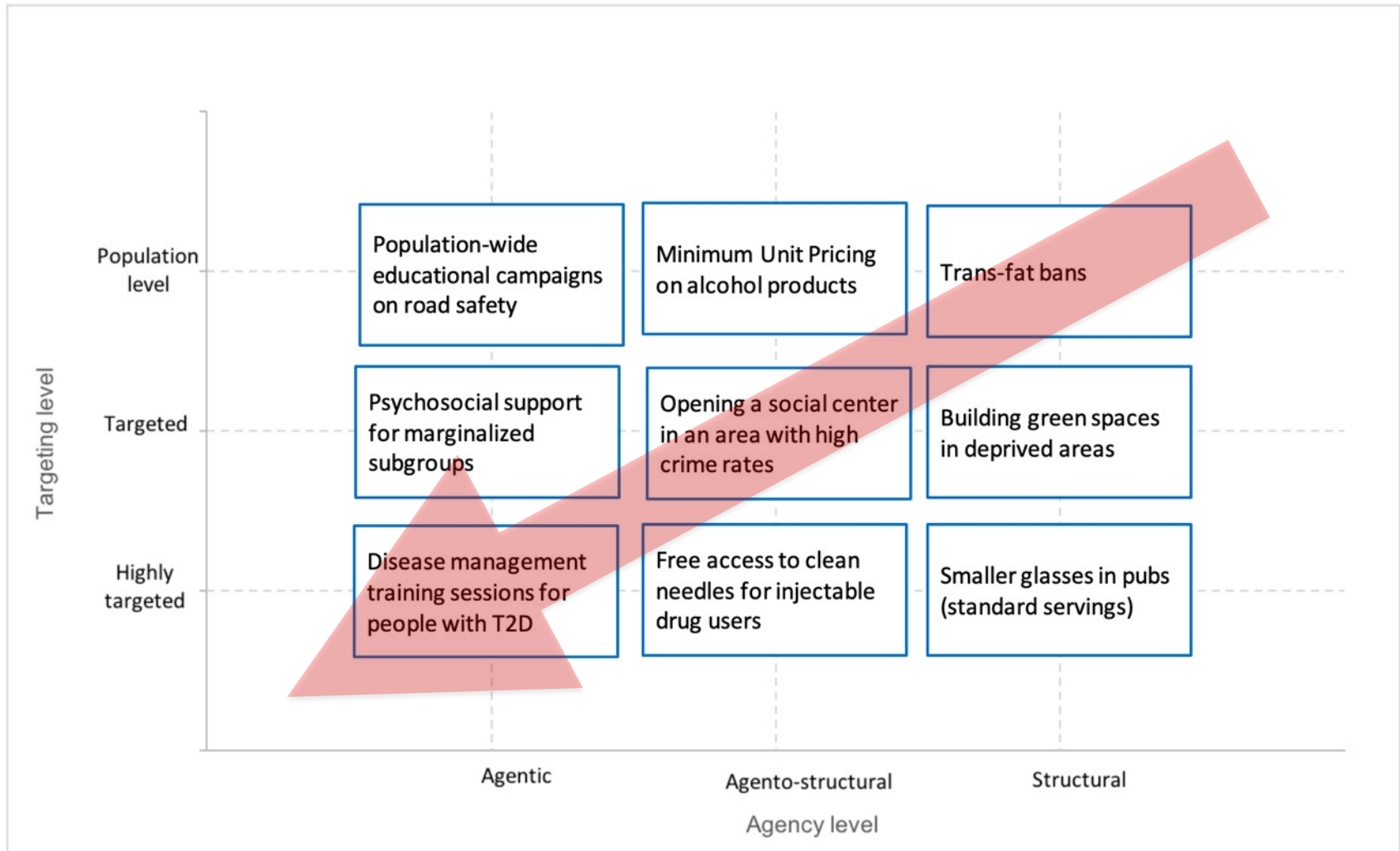


# The dangerous olive of evidence...









Population level

Population-wide educational campaigns on road safety

Minimum Unit Pricing on alcohol products

Trans-fat bans

Targeted

Psychosocial support for marginalized subgroups

Opening a social center in an area with high crime rates

Building green spaces in deprived areas

Highly targeted

Disease management training sessions for people with T2D

Free access to clean needles for injectable drug users

Smaller glasses in pubs (standard servings)

Agentic

Agento-structural

Structural

Agency level

Targeting level



# Complex adaptive systems



Complex adaptive **systems**



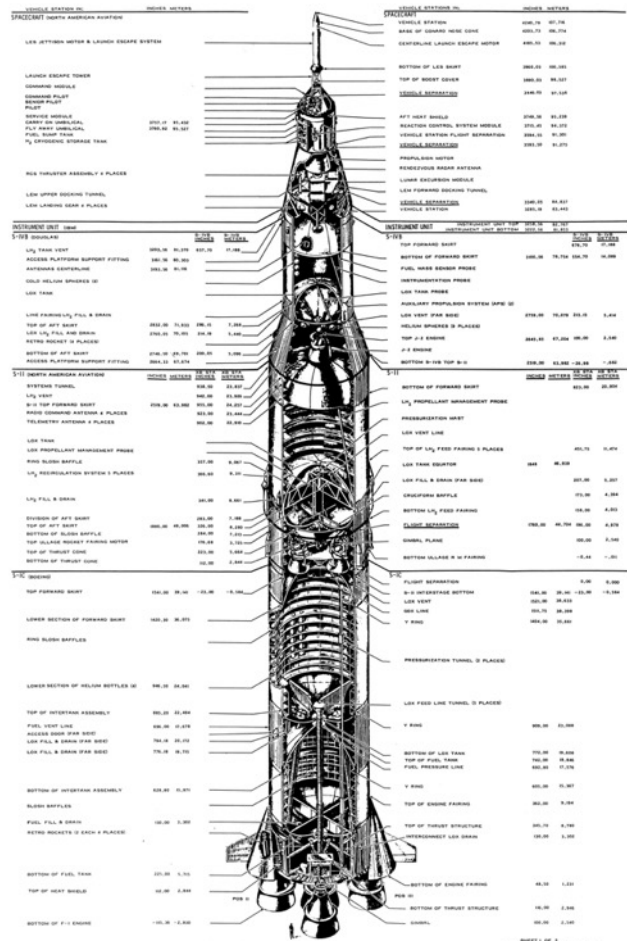
# MORE ACTIVE PEOPLE FOR A HEALTHIER WORLD



# Complex adaptive systems



# SATURN V APOLLO FLIGHT CONFIGURATION



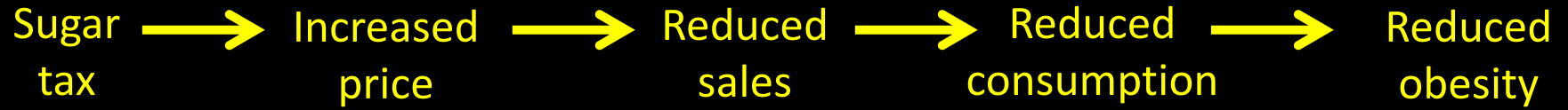
REVISION 1 OF 1  
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 FOR: [Signature]  
 APPROVED: [Signature]  
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 PROJECT: [Signature]  
 DRAWING NO.: [Signature]  
 SHEET NO.: [Signature]  
 TOTAL SHEETS: [Signature]

EX LIBRIS  
 David T. Gray





Complex **adaptive** systems



Political  
lobbying  
PR offensive  
Media



Sugar  
tax

↑  
Minimise  
magnitude

Price  
restructuring  
Reformulation



Increased  
price

↑  
Minimise  
changes

Advertising  
Marketing  
Promotions



Reduced  
sales

↑  
Minimise  
impact

Divert  
attention



Reduced  
consumption

↑  
Obfuscate

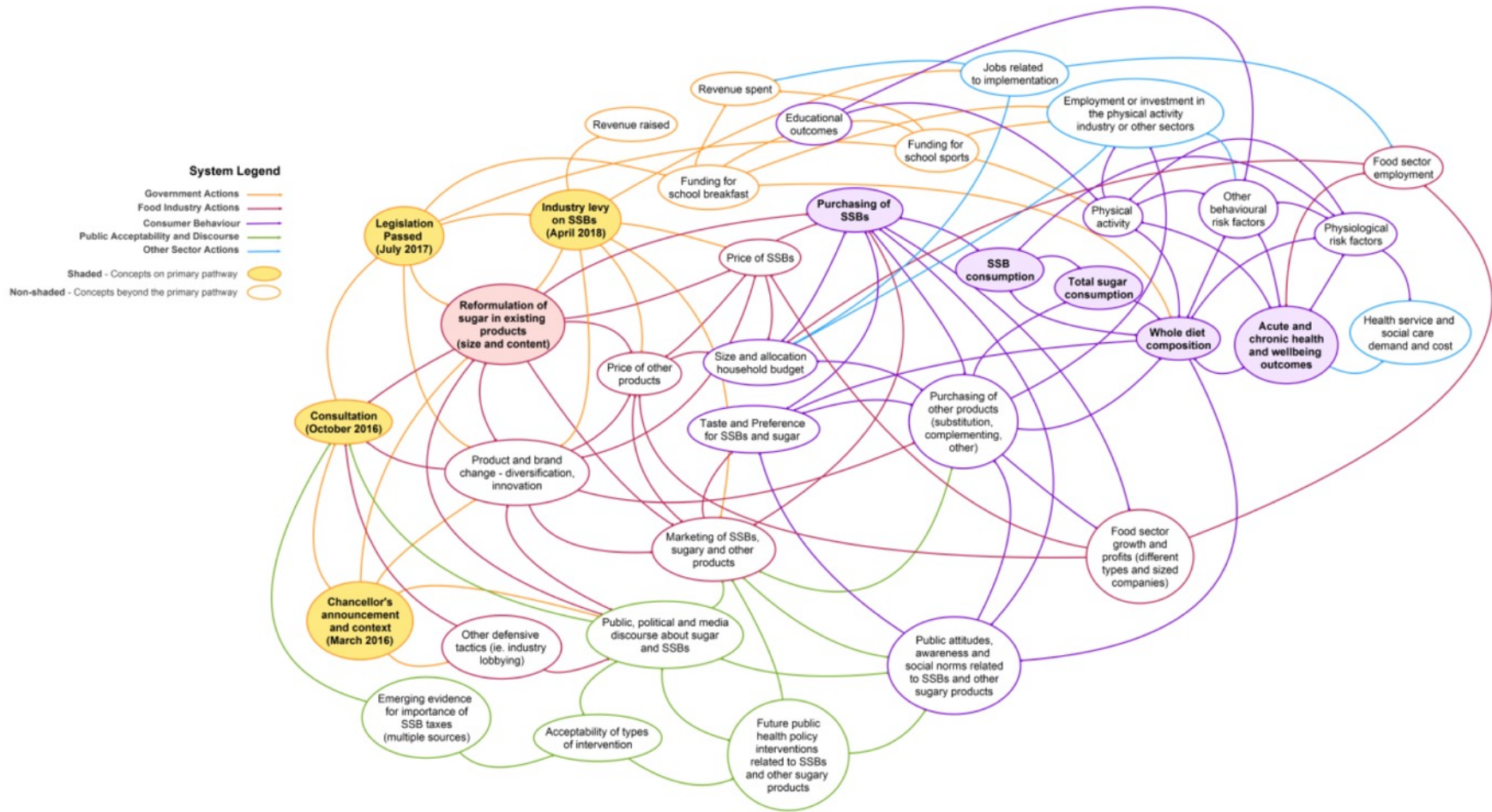
Undermine  
the  
evidence



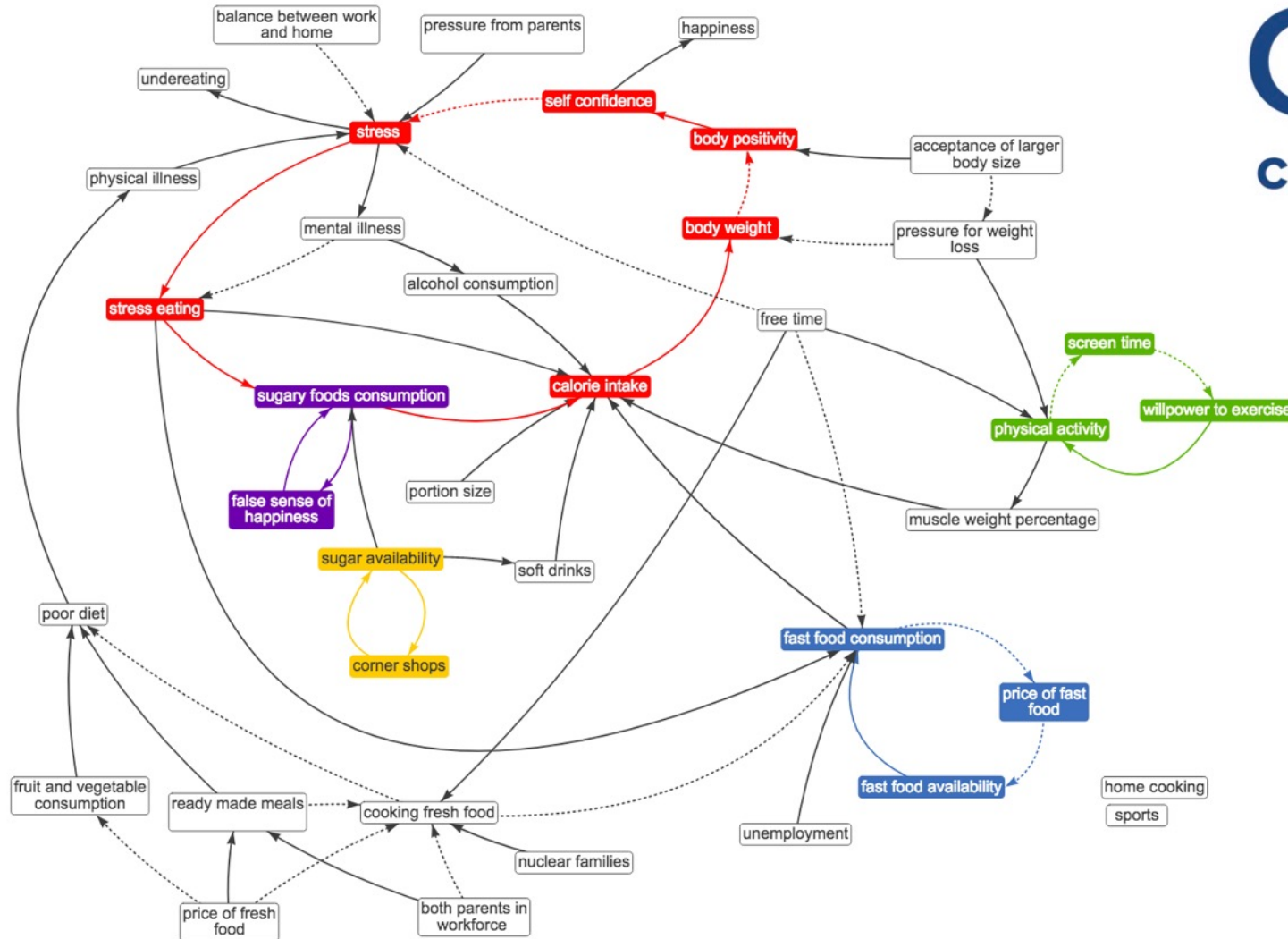
Reduced  
obesity

↑  
Manipulate  
the discourse





Systems thinking and systems science



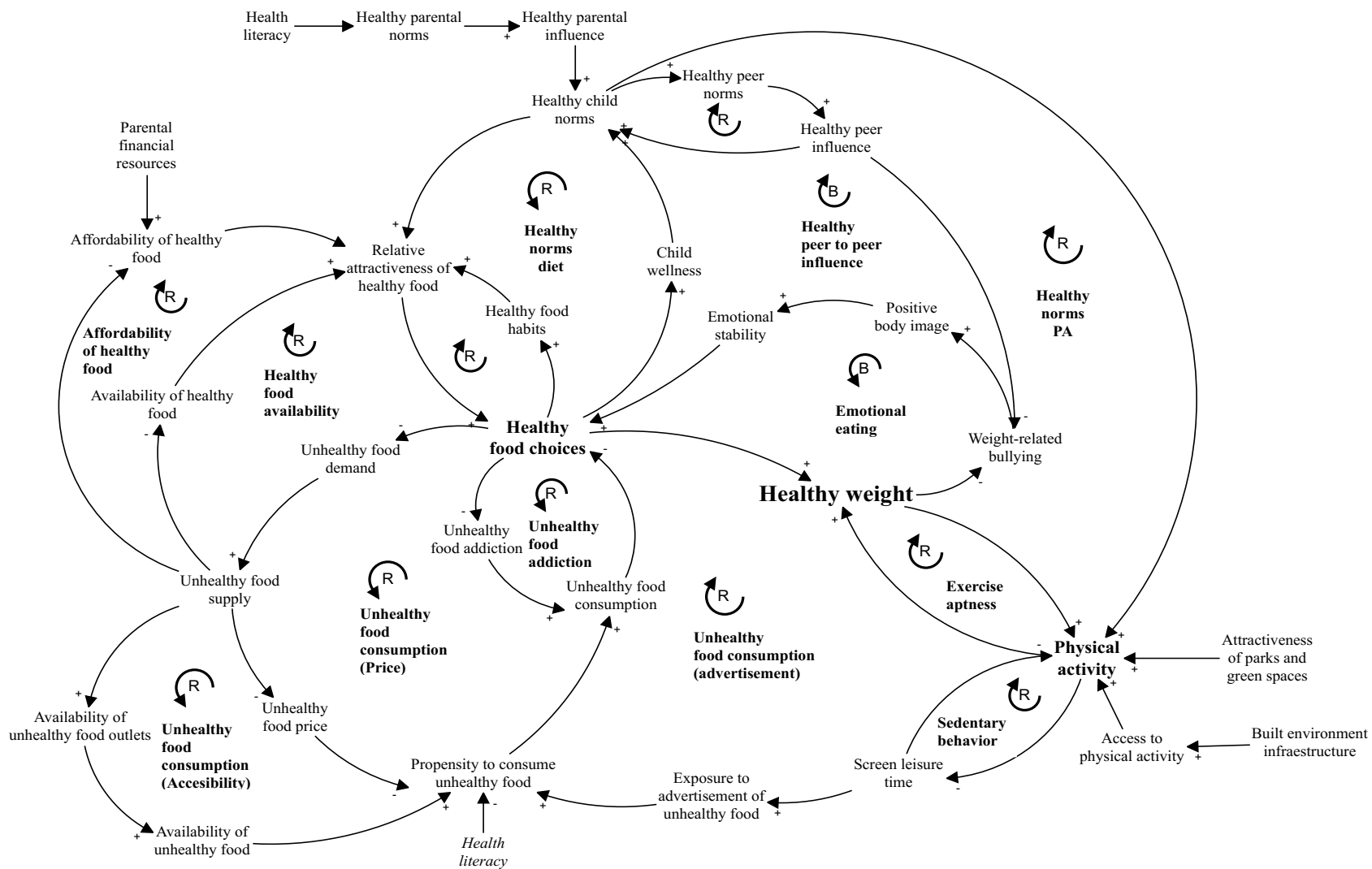
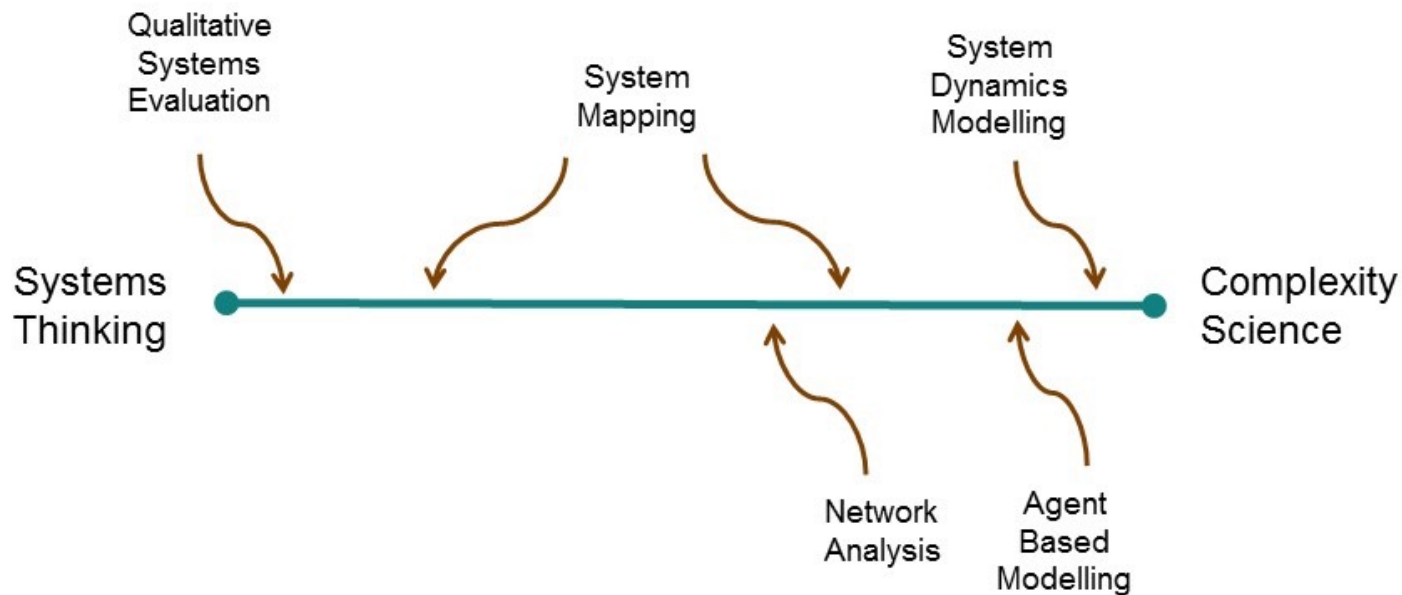


Figure 2: Typology of approaches to Public Health Complex Systems Evaluation






Time



# Walking bus stop

Sponsored by  VolkerHighways

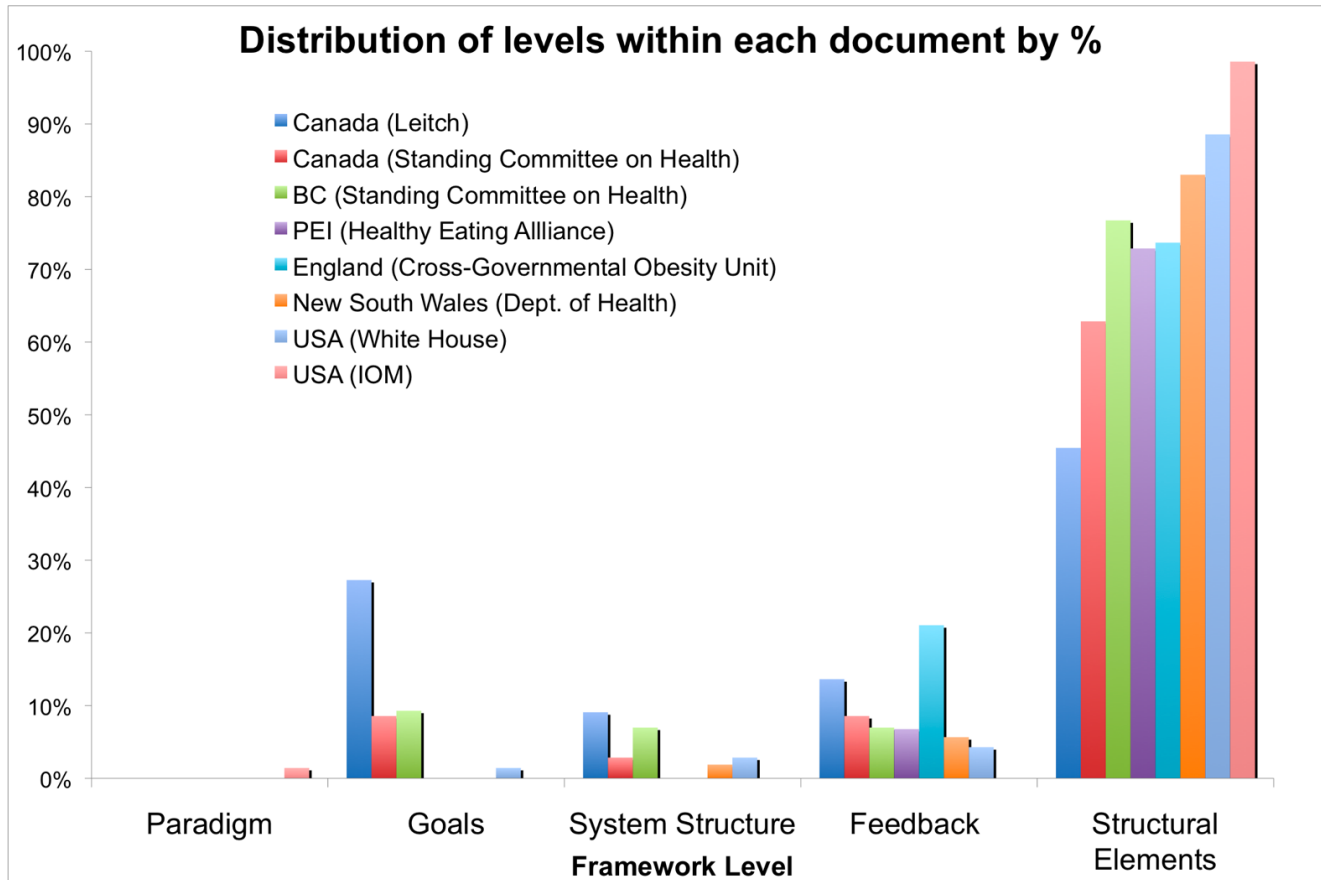
*Medway*  
COUNCIL  
Serving You



Levers for change

## The Intervention Level Framework

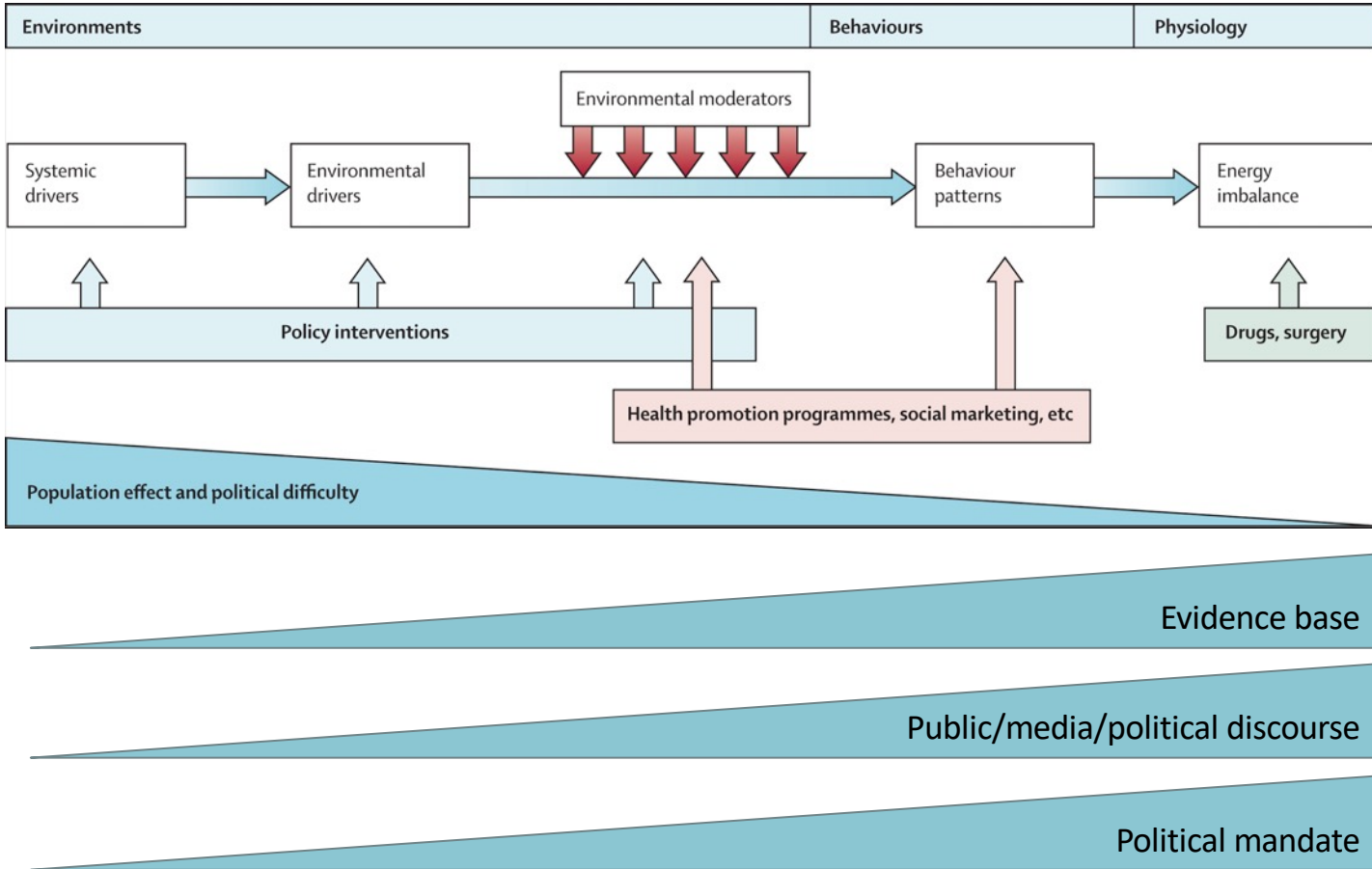
Intervention Level	Definition
Paradigm	System's deepest held beliefs. System goals, rules and structure arise out of the paradigm
Goals	The aim/priorities of the system
System structure	All of the elements that make up the system as a whole including the subsystems, actors and interconnections between these elements
Feedback & Delays	Loops that cause an action by one element of the system to in turn affect the flows into or out of that same element
Structural elements	Subsystems, actors and the physical elements of the system

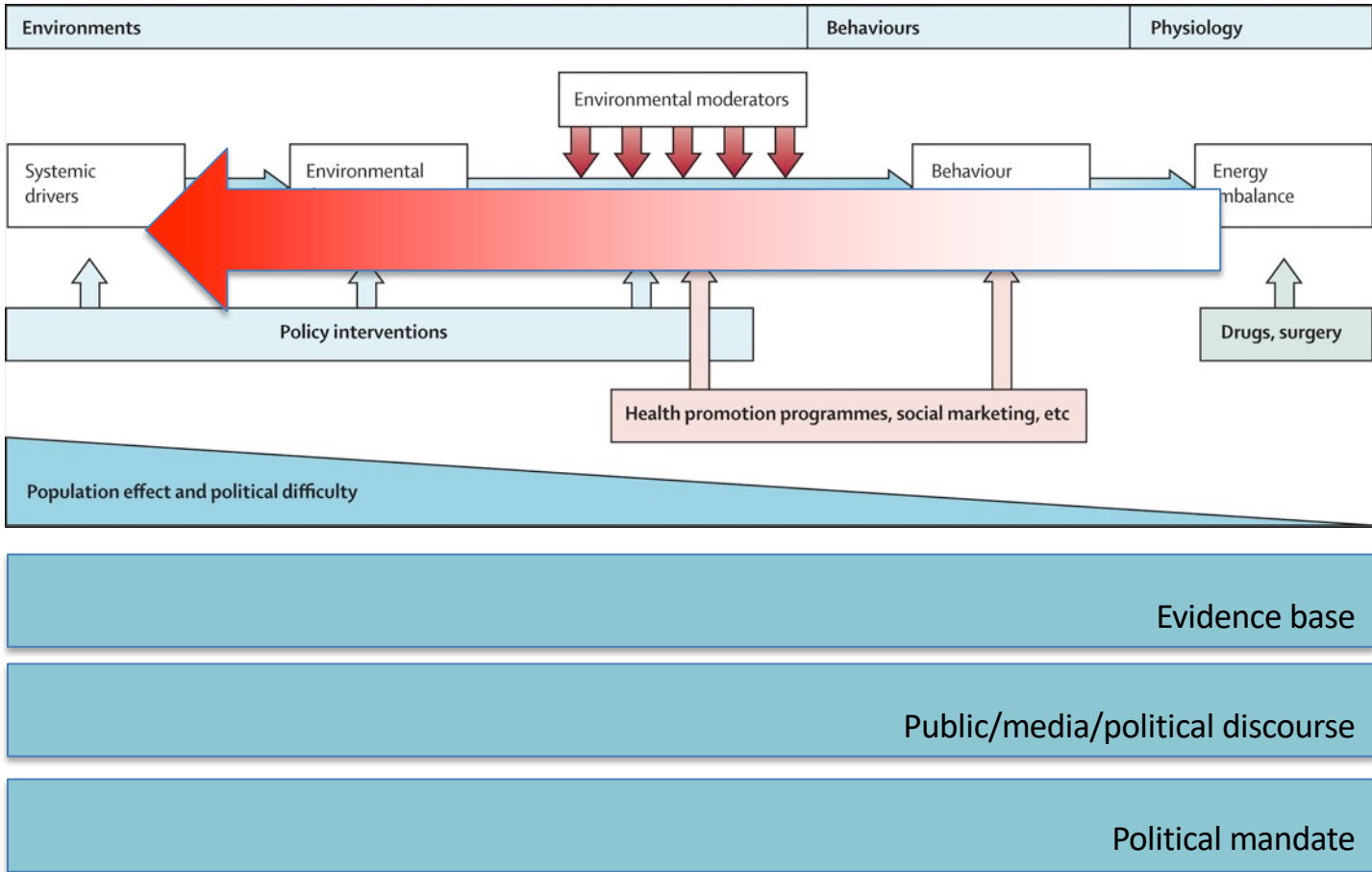




# Well-being of Future Generations (Wales) Act 2015











# Conclusions

- The public health evidence base is structurally biased towards short term impacts of tightly defined, highly agentic, individual level interventions
- This prioritises responses skewed towards proximal risk factors, and risks widening inequalities
- Population level health improvement involves actions at all levels, of which the individual level is just one
- Framing matters – eg sugar sweetened drinks taxes internalize harmful externalities, they don't punish 'sin'
- Time dimension is important: 20 year vision, 5 year strategy, 1 year plan
- Systems approaches can help us to understand how interventions influence systems, and how those systems adapt in response