Human Intelligence & Artificial Intelligence Nexus:

Articulating and Mitigating Health Risks in Future Intelligence System

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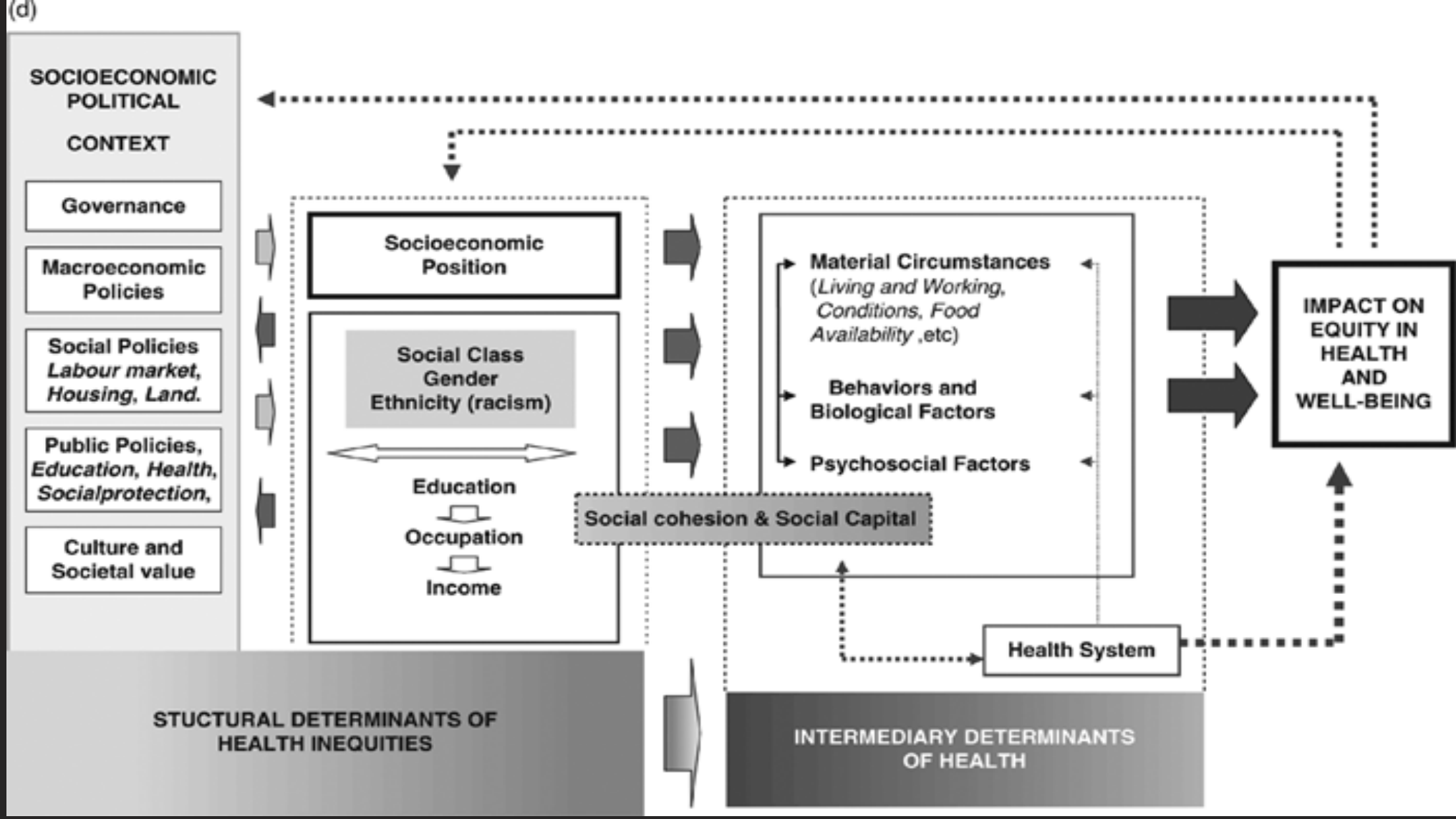
Jiho Cha MD PhD

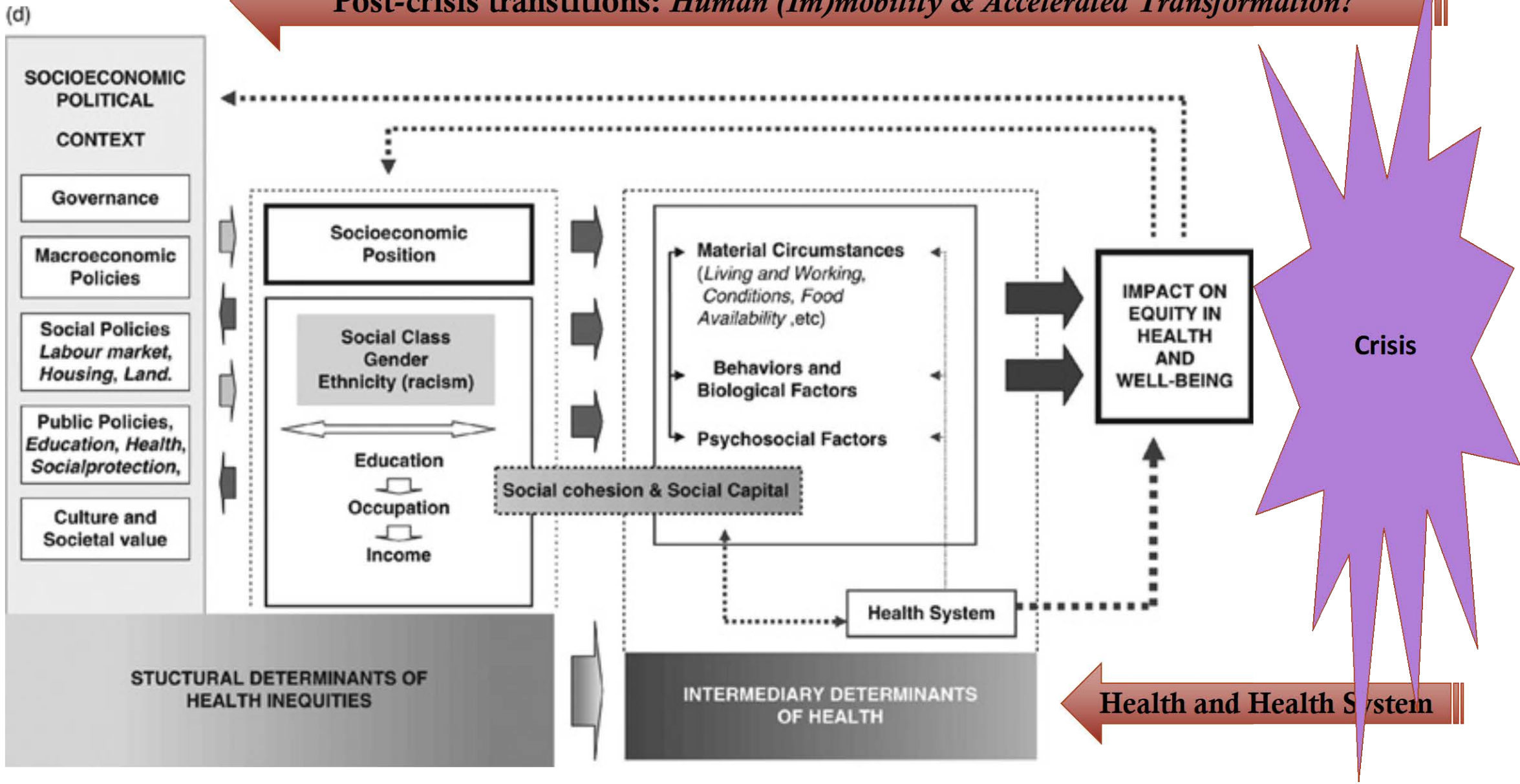
National Assembly of Korea

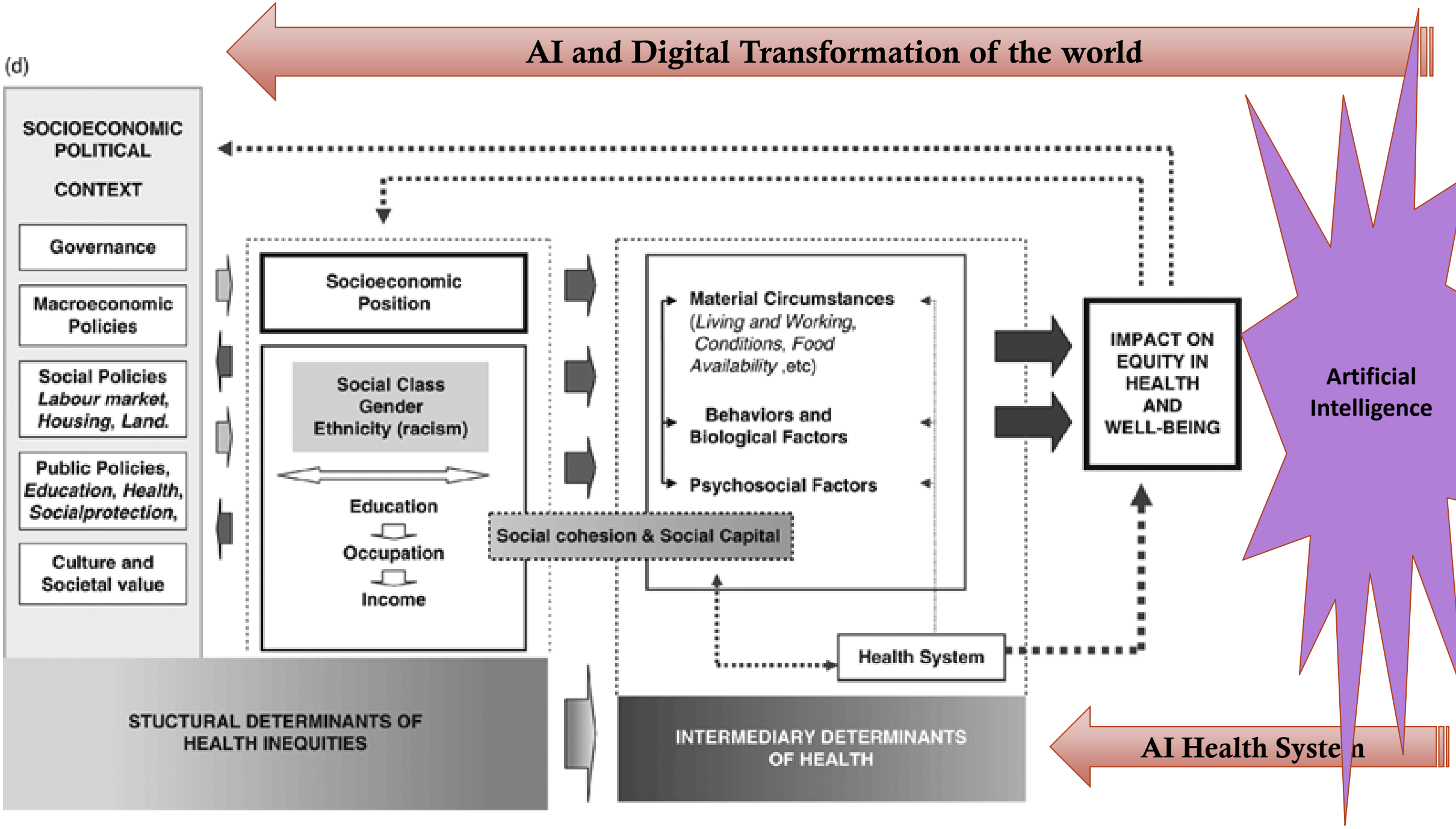


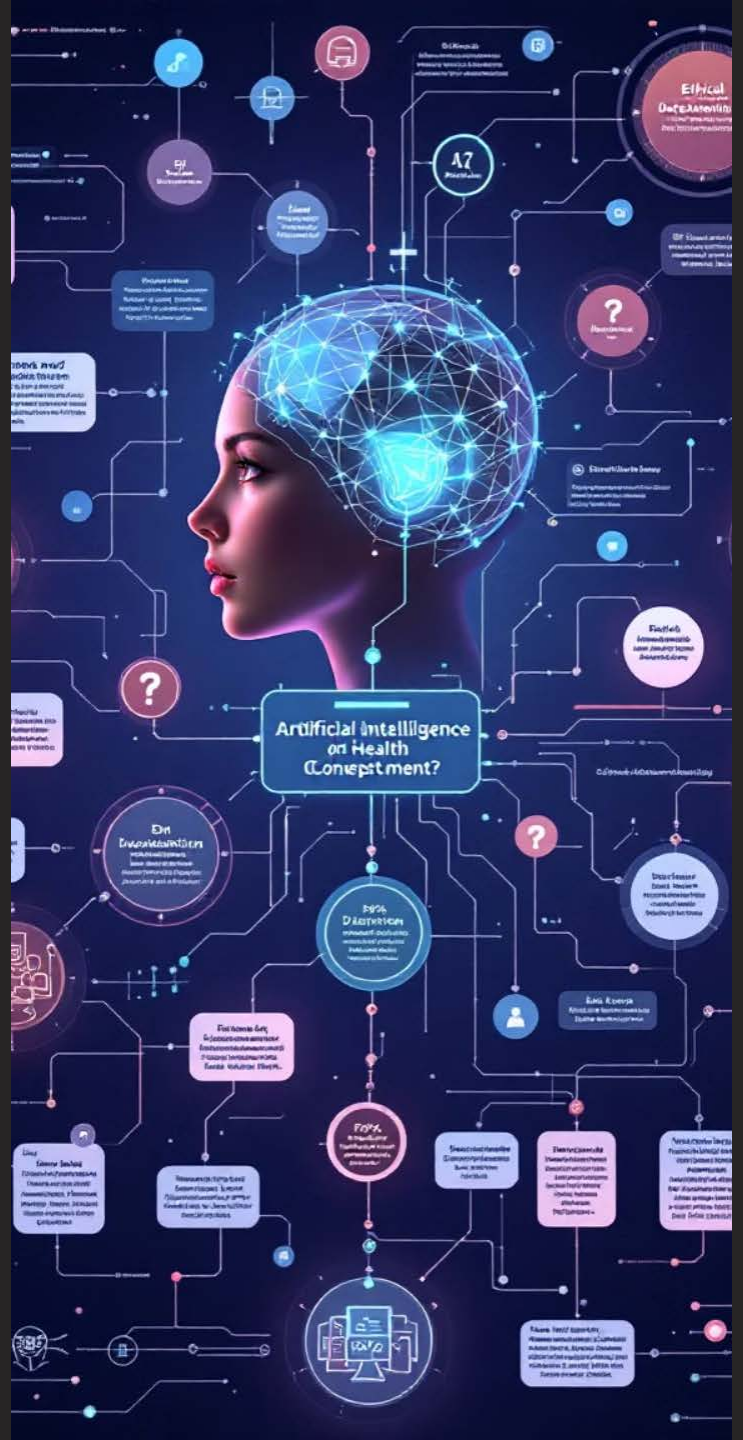
Social Determinants of Health in Future: An Introduction

WHO Commission on [illegible]

Post-crisis transtitions: *Human (Im)mobility & Accelerated Transformation?*




AI and Digital Transformation of the world
(d)
SOCIOECONOMIC POLITICAL CONTEXT
Governance
Macroeconomic Policies
Social Policies Labour market, Housing, Land.
Public Policies, Education, Health, Socialprotection,
Culture and Societal value
Socioeconomic Position
Social Class
Gender
Ethnicity (racism)
Education
Occupation
Income
Material Circumstances (Living and Working, Conditions, Food Availability ,etc)
Behaviors and Biological Factors
Psychosocial Factors
Social cohesion & Social Capital
Health System
IMPACT ON EQUITY IN HEALTH AND WELL-BEING
Artificial Intelligence
STUCTURAL DETERMINANTS OF HEALTH INEQUITIES
INTERMEDIARY DETERMINANTS OF HEALTH
AI Health System



Navigating the Future: Key Questions

Emerging Future

What will reshape the landscape
ape of social determinants and th
d their
impact on health in the future
e

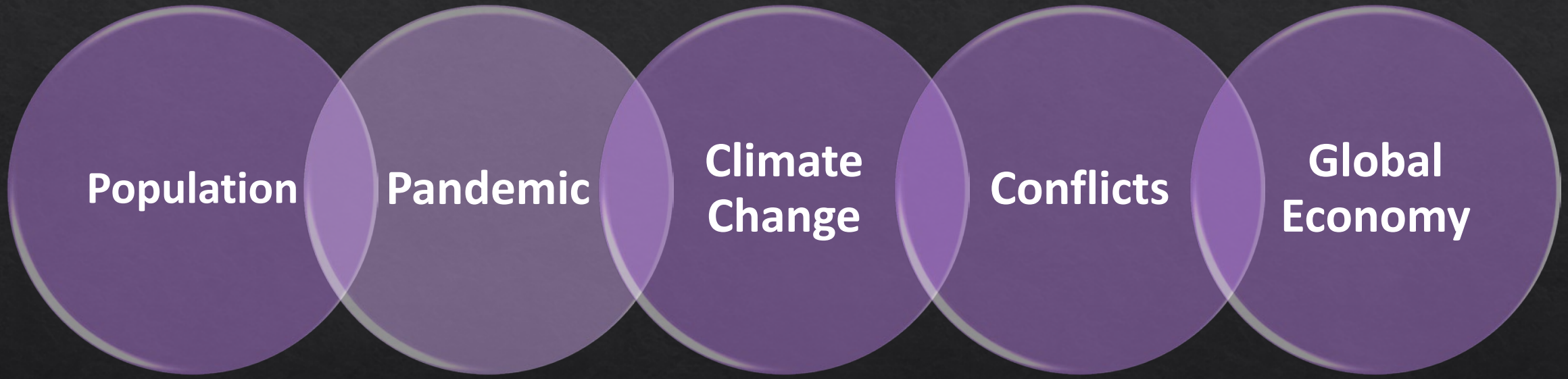
Changing Nature of Inequity

How will these exacerbate or miti
mitigate existing health disparitie
rities, social determinants of healt
health?

AI-Powered Crisis Resilient Systems

How can AI be leveraged to build more resilient healt
nt healthcare systems and social infrastructure, capa
, capable of responding effectively to future crises?
ses?

Emerging Future 1 : Polycrisis
Compounding Impacts of Multiple Crisis



Polycrisis: A New Era of Complexity

1

Climate Change Impacts

Cascading effects on health include extreme heat, air eat, air pollution, and infectious diseases.

2

Pandemic Impacts

Compounding effects on healthcare systems, access t access to care, and social inequalities.

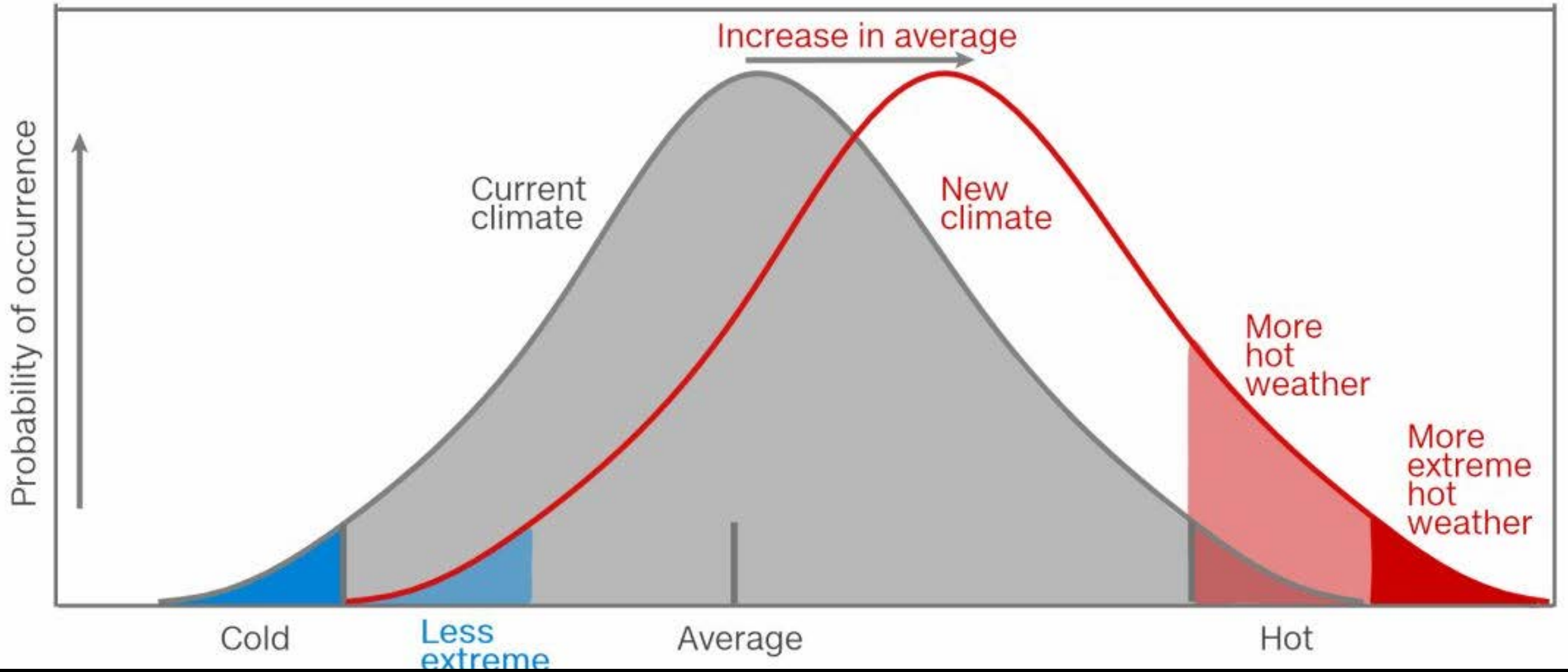
3

Global Population Changes

Aging populations, migration patterns, and urbaniza rbanization bring new challenges for public health a ealth and social services.

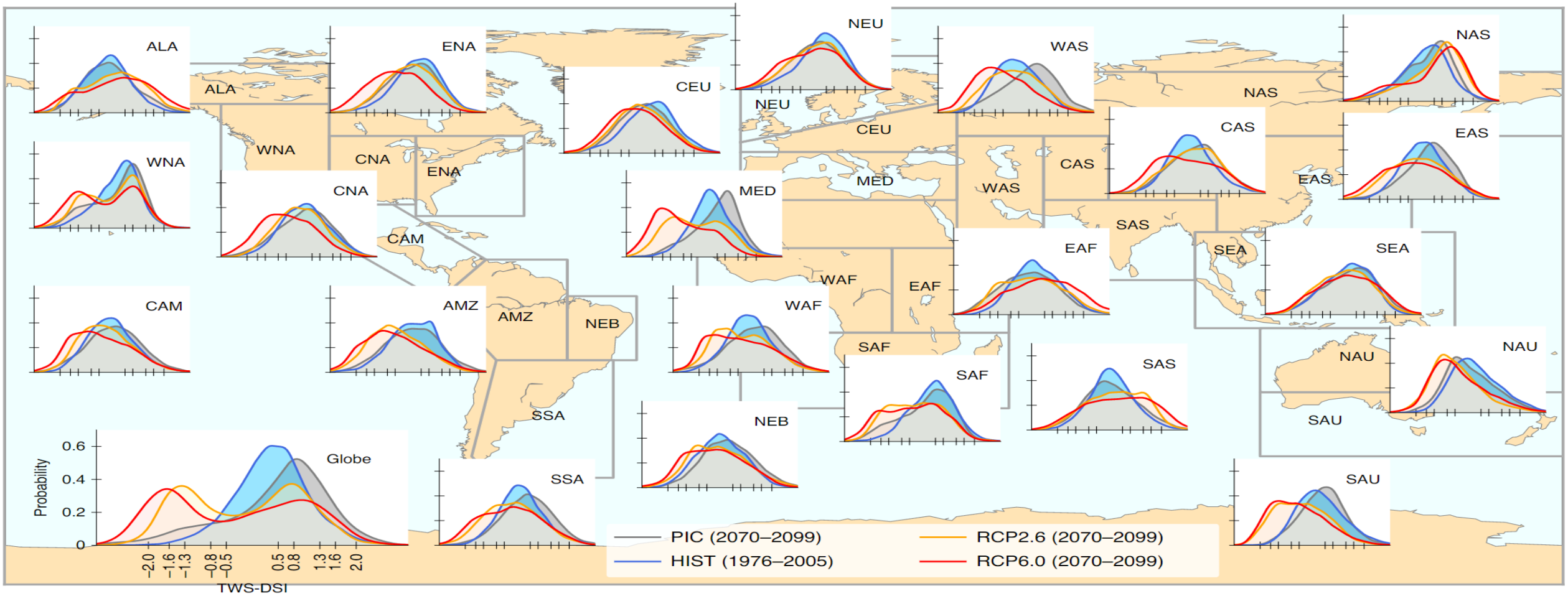
Climate Crisis

Extreme Events



Climate Crisis

Regional Disparities

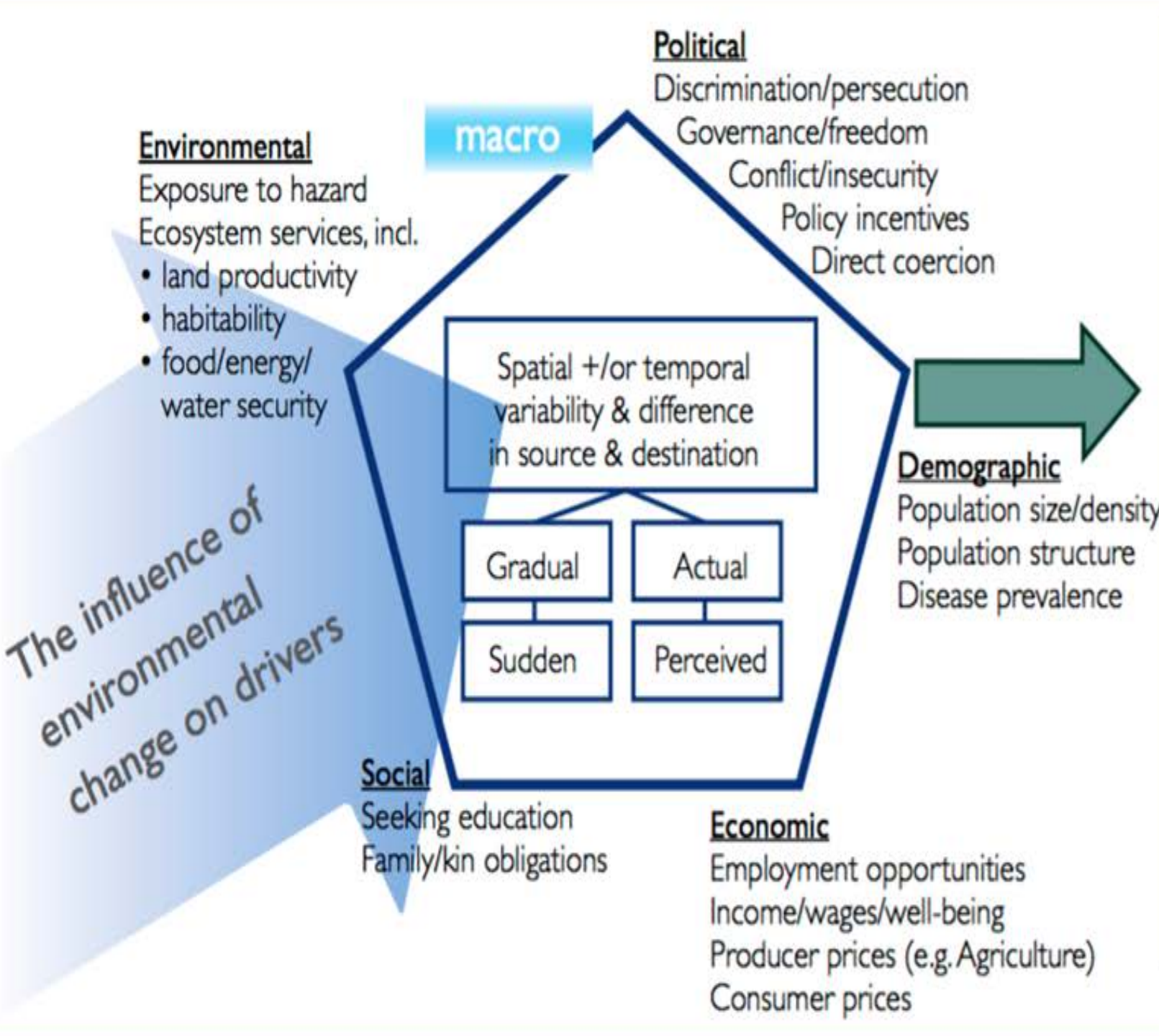


Climate Crisis and Human Mobility

Climate Migration is not historically new. But, changing **human mobility** in this speed maybe first in human history

- Changing patterns of human mobility cause new socioeconomic challenges
- There are significant health and health system impacts of human immobility.

Climate Crisis
Changing Human Mobility

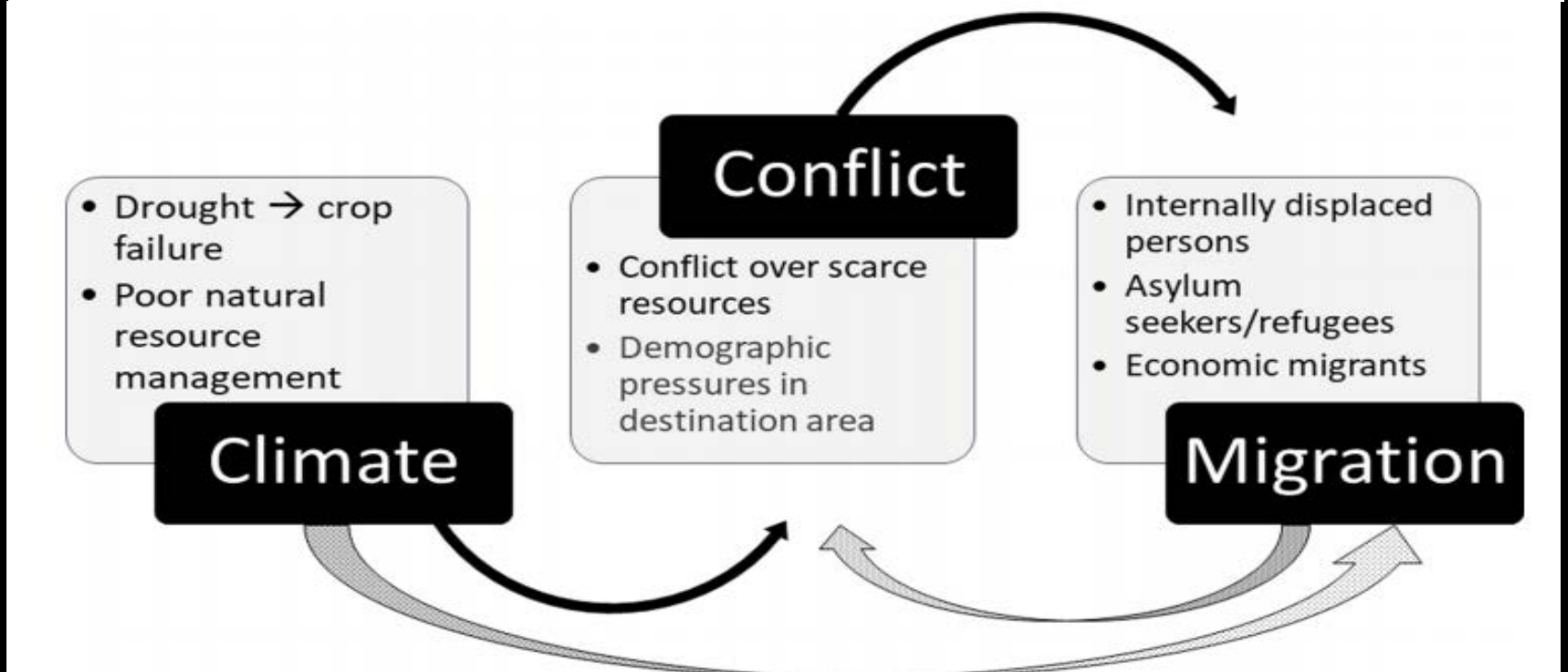


Human Mobility

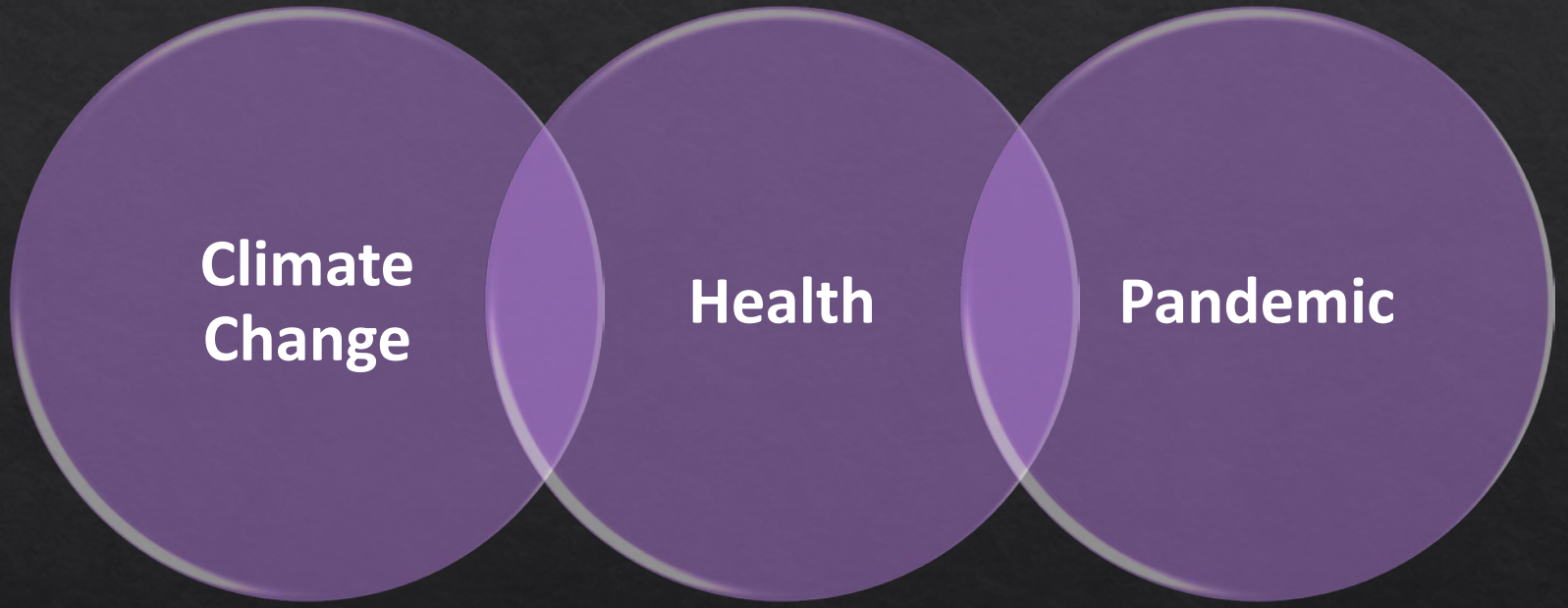
More than 1 billion people are on the move globally, about 1 in 8 of the global population.

- **281 million people are international migrants**
- **84 million are forcibly displaced**
  - **48 million are internally displaced**
  - **26.6 million are refugees**
  - **4.4 million are asylum seekers**
  - **Among the forcibly displaced, 35 million are children and 1 million were born into refugee life**

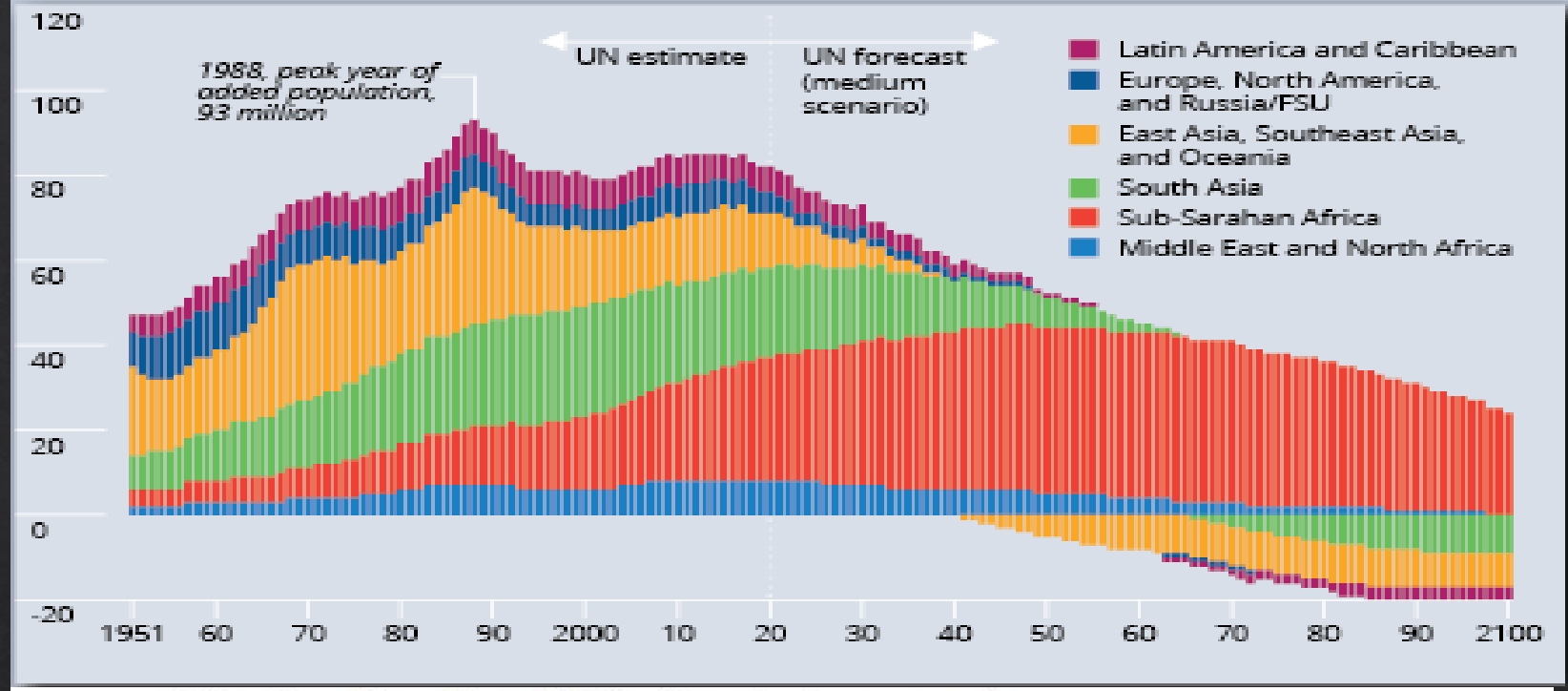
Climate Conflict Migration Nexus

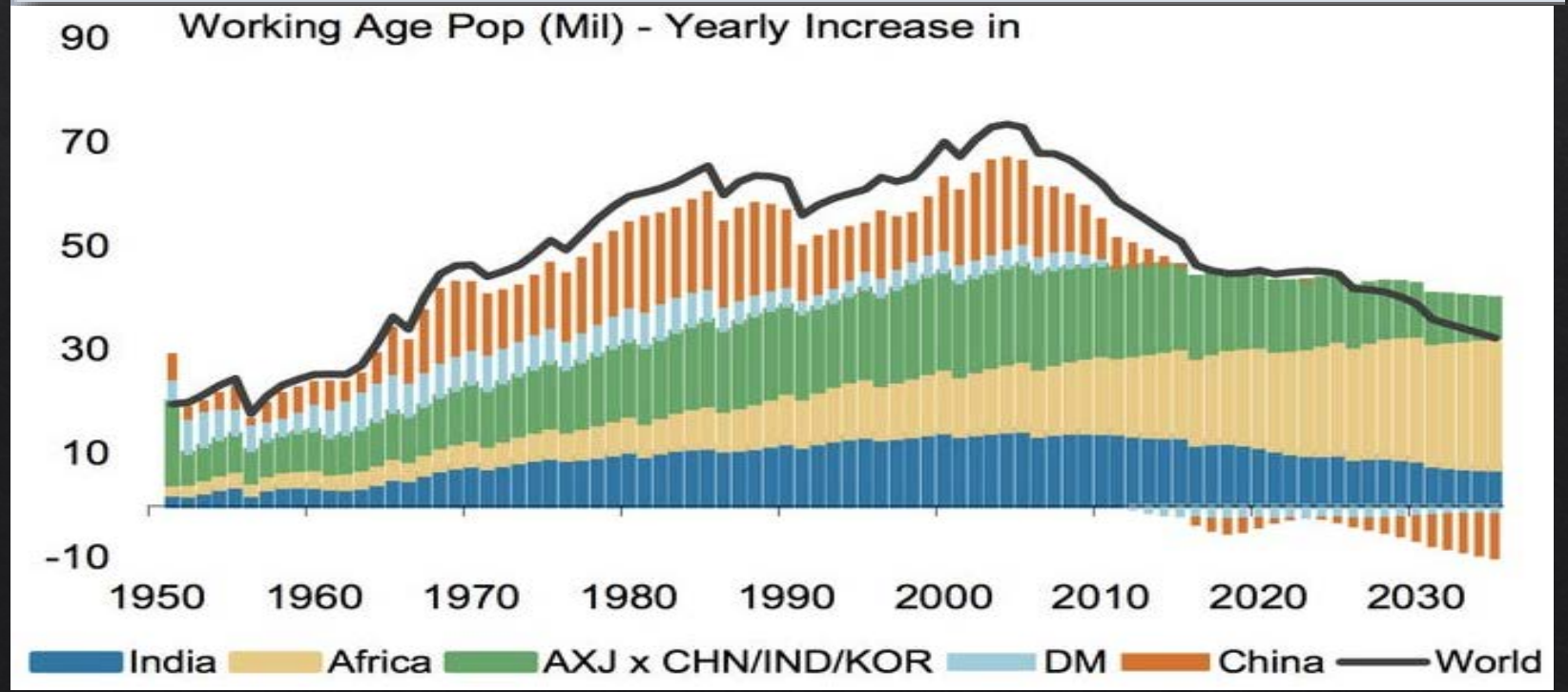


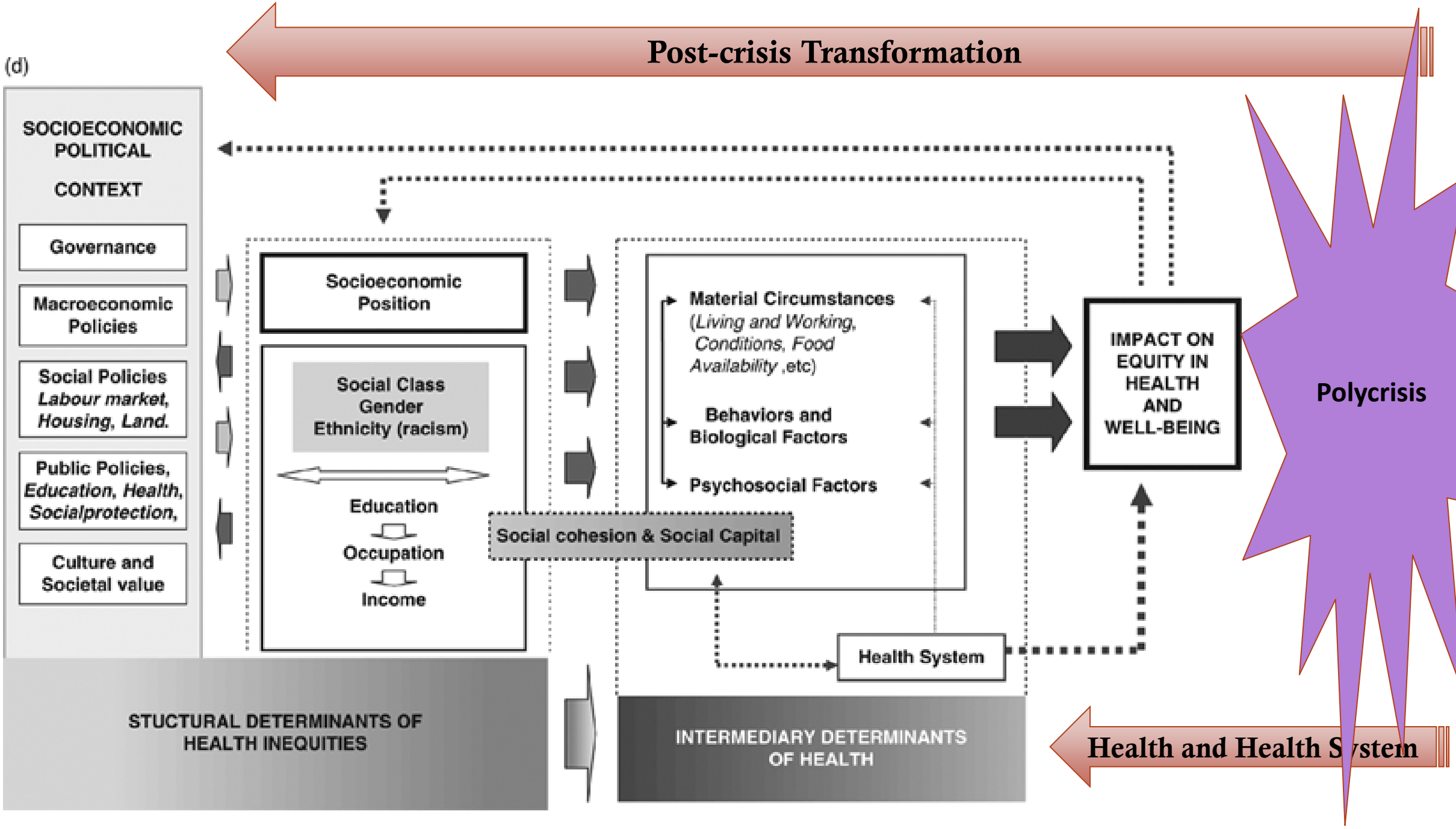
Climate Crisis and Pandemic Nexus



Compounding impacts on aging population






Post-crisis Transformation
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Polycrisis
Health and Health System

Polycrisis and Social Determinants: A Complex Interplay

1

Health Disparities

Crises disproportionately impact vulnerable populations, exacerbating existing health inequities.

2

Healthcare System Strain

Crises overwhelm healthcare systems, leading to delays in care s in care and decreased access to essential services.

3

Economic Instability

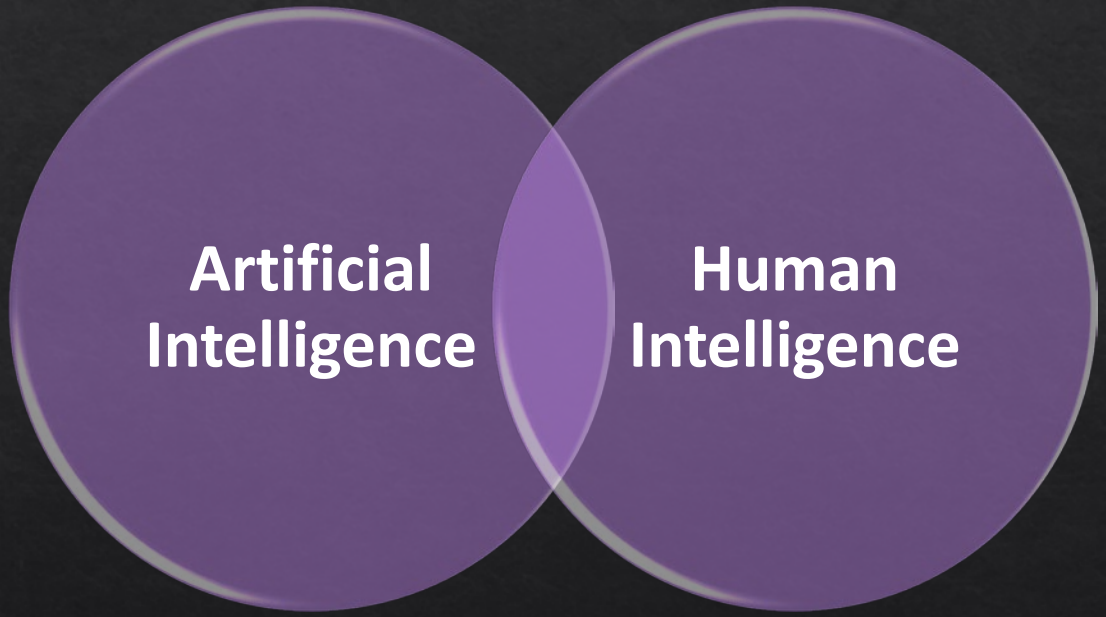
Crises lead to job losses, poverty, and reduced access to health o healthcare, impacting health outcomes.

4

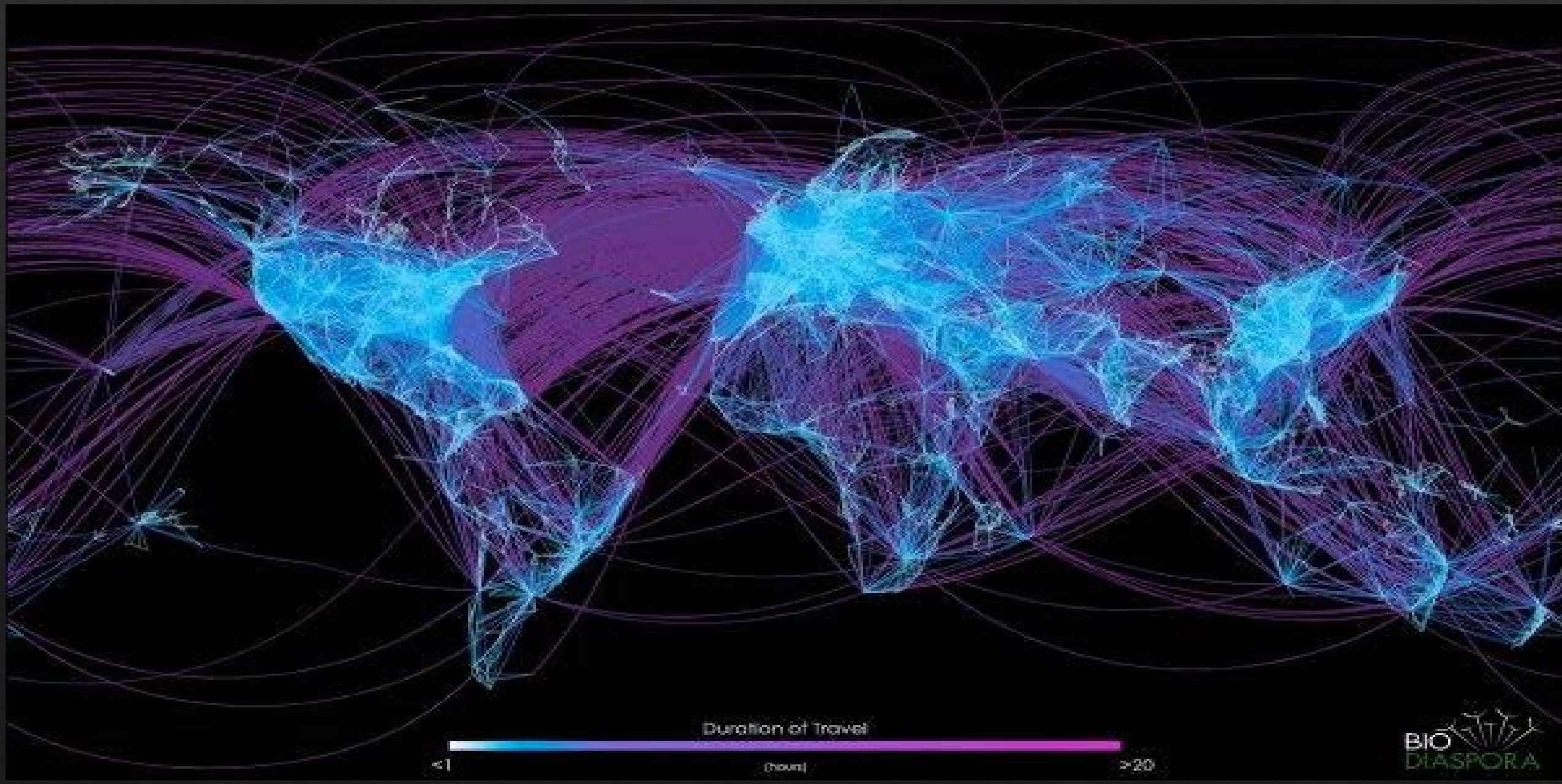
Social Unrest

Crises can trigger social unrest, disrupting healthcare services a ervices and undermining social cohesion.

Emerging Future 2: AI
Artificial Intelligence X Human Intelligence



Global AI Transformation

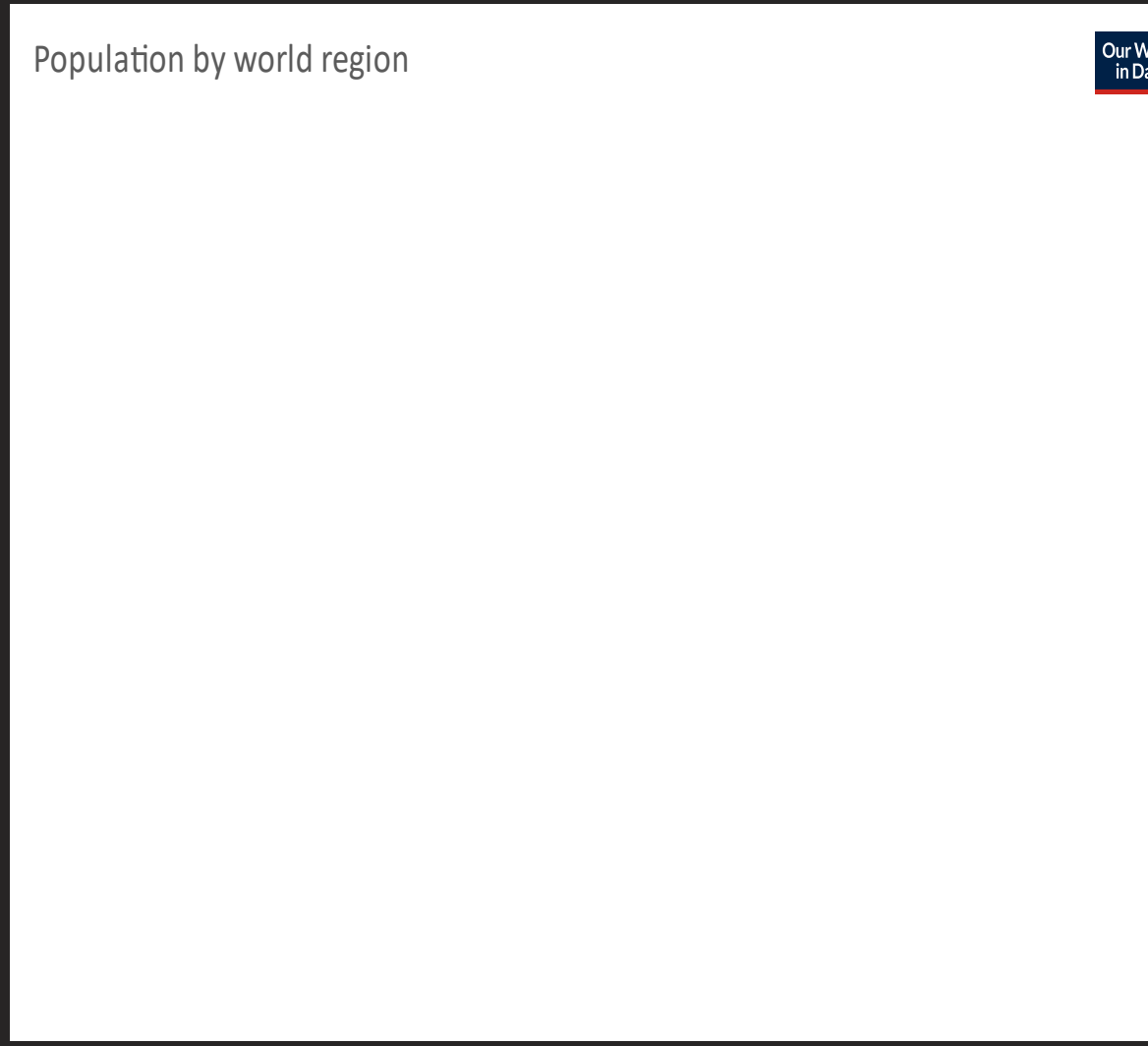


AI-Driven Transformation: A Shifting Landscape

New Intelligence Systems: Human-AI Nexus

The integration of AI into intelligence systems is reshapin eshaping our understanding of human intelligence. This e. This nexus, where human and AI capabilities intertwin ertwine, is generating new forms of intelligence with bot ith both positive and negative implications. This transfor ransformation is particularly evident in the differences b nces between generations and across countries.

More Fundamentally, Changing Patterns of Inequality in Human Intelligence System



Global Migration and Remittances

International migrants[a]

281 million

international migrants globally in 2020, or 3.6 per cent of the world's population

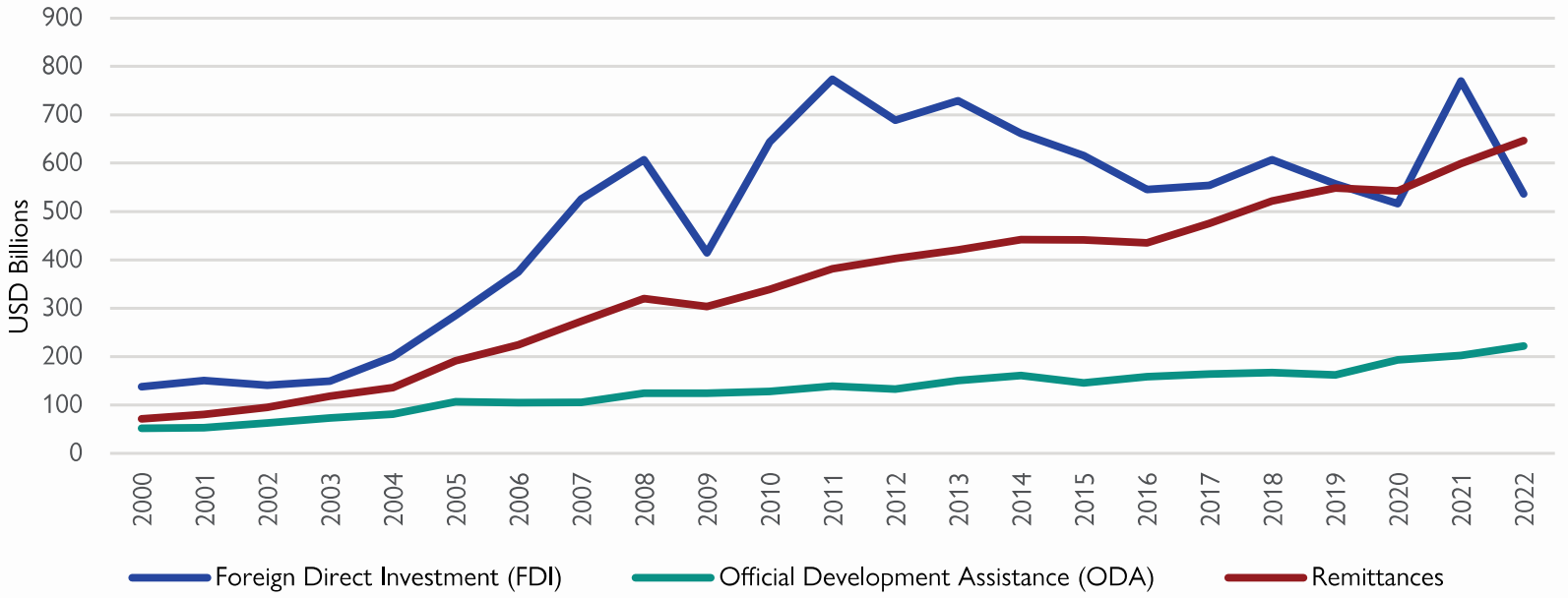
International remittances[d]

USD **831** billion

in **international remittances** globally in 2022

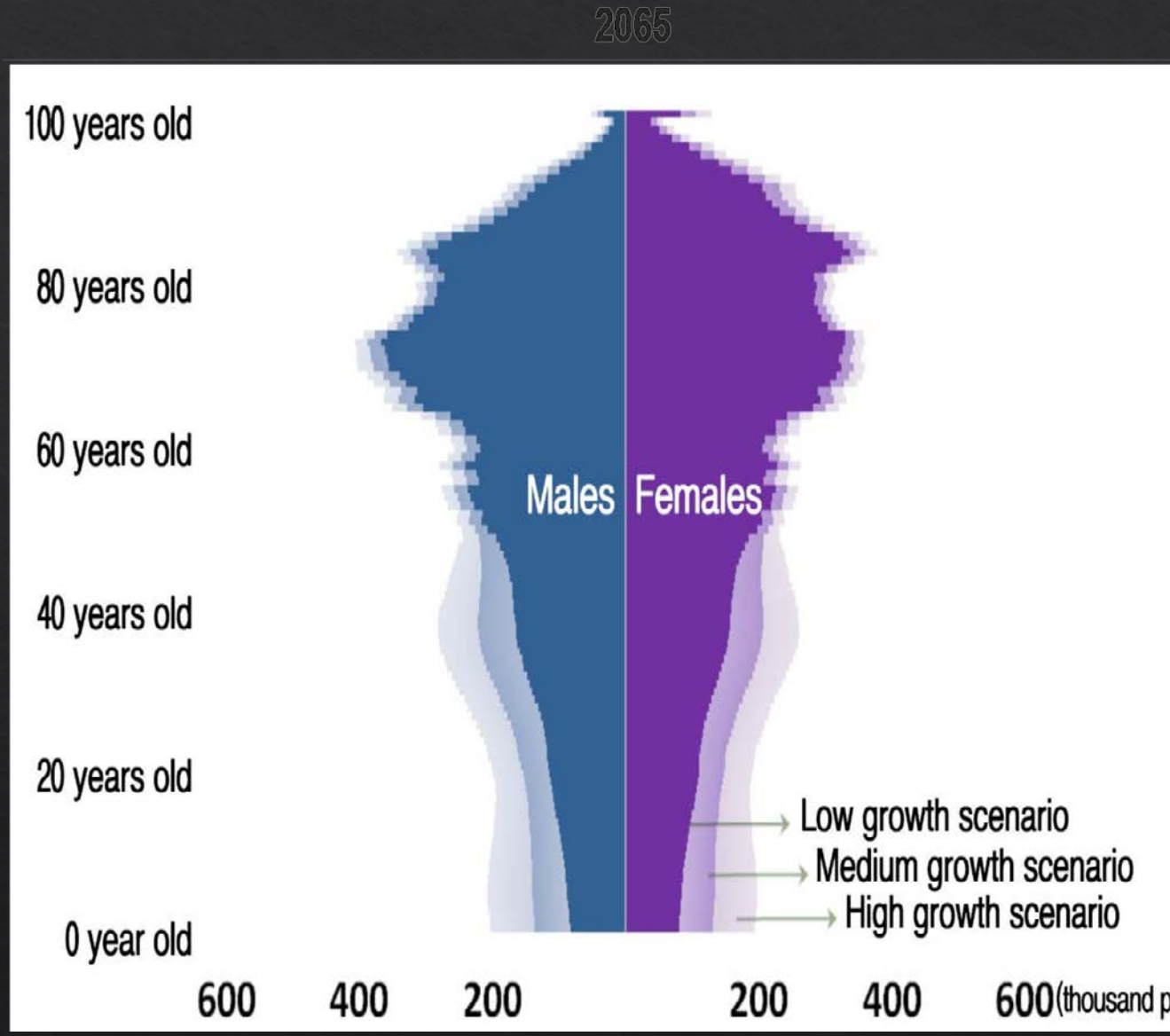
Low- and middle-income countries[d]

USD **647 billion** in **international remittances** was received by low- and middle-income countries in 2022

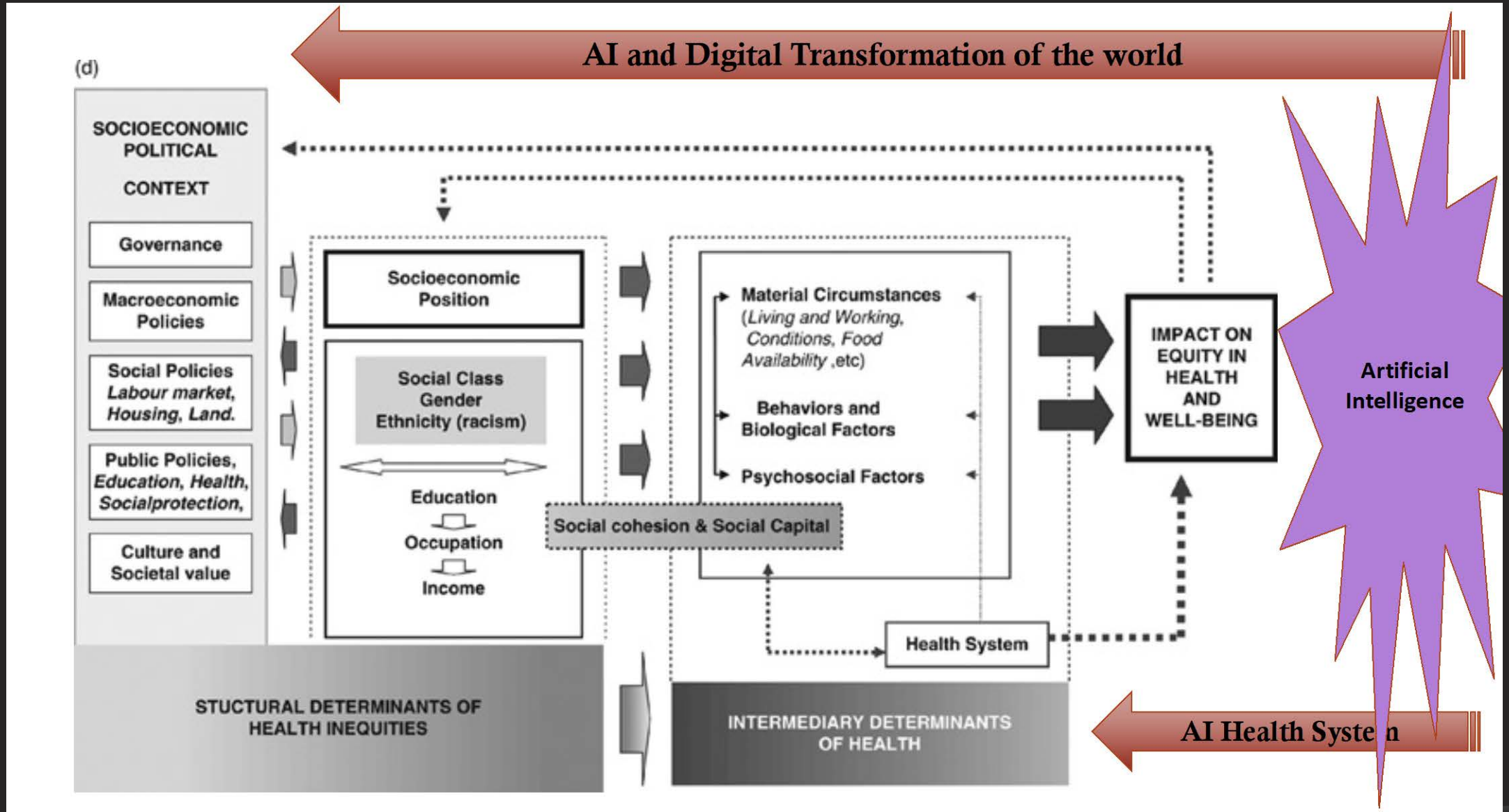


The Elderly Population and Retirement Age

The rapidly aging global population is po
n is posing significant challenges for heal
or healthcare and social systems. The int
he integration of AI into healthcare, elde
, eldercare, and social services is crucial
ucial to address these challenges and en
nd ensure a sustainable future for an agi
an aging population. AI can assist in pers
n personalized care, disease prevention,
ntion, and improved quality of life for se
or seniors.



Navigating the AI-Powered World: Challenges



Navigating the AI-Powered World: Challenges

AI and Global Security

The integration of AI into military oper ations is raising significant ethical and s ecurity concerns. The development of autonomous weapons systems, AI-po wered surveillance, and the potential f or misuse of AI in warfare require caref ul consideration and regulation. This ca lls for a collaborative effort among nati ons to establish responsible guidelines for the use of AI in defense application s.

AI in Political System

The increasing use of AI in elections raises raises concerns about its potential impact mpact on democratic processes. AI algorit algorithms can be used to analyze voter d oter data, target political messages, and e and even manipulate public opinion. It is c . It is crucial to ensure transparency, fairne airness, and accountability in the use of AI of AI in elections to preserve democratic v ratic values.

AI in Surveillance: Balancing Secur ity and Privacy

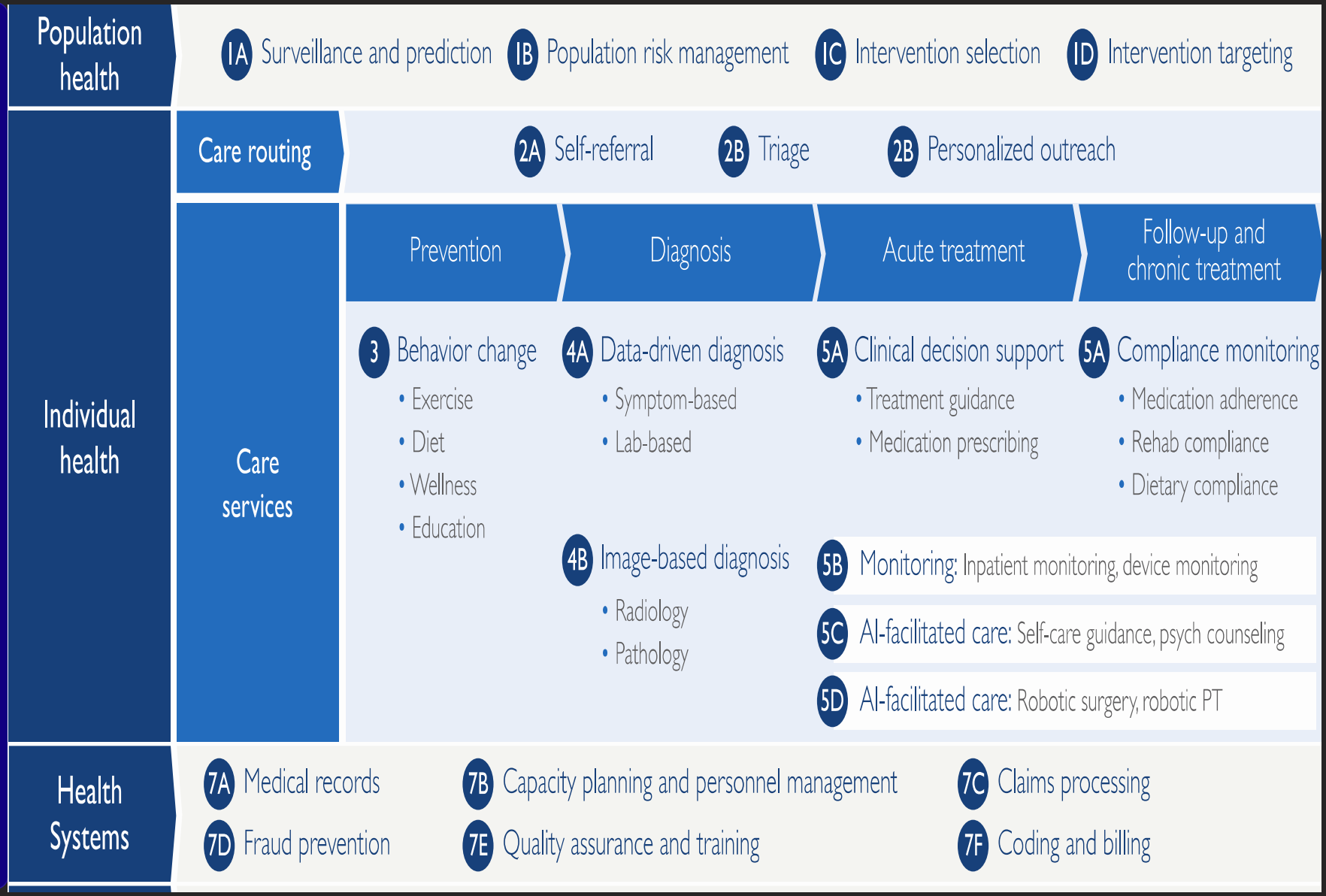
The use of AI-powered surveillance technologies is raising concerns about privacy and civil libertie s. Facial recognition, predictive policing, and ma ss data collection can have significant conseque nces for individual rights and freedoms. It is esse ntial to establish clear ethical guidelines and reg ulatory frameworks to ensure that AI-powered s urveillance is used responsibly and does not infri nge on fundamental human rights.

Artificial Intelligence in Future Health System : Risks and Resilience

AI Health in the Future: Beyond Service Delivery

System Transformation

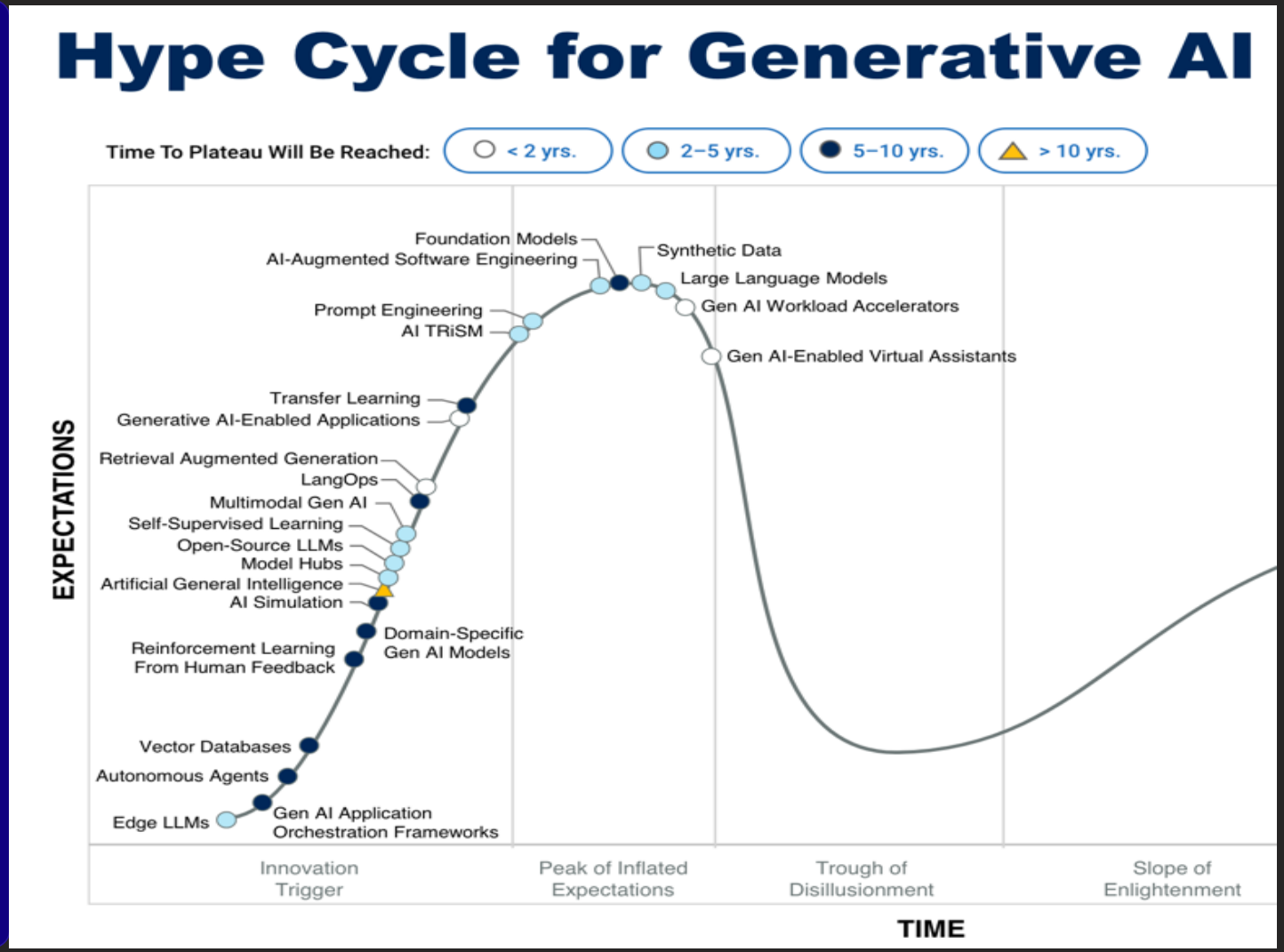
The integration of AI into healthcare systems will require a fundamental shift beyond simply delivering AI-powered services. It necessitates a holistic transformation that encompasses data infrastructure, healthcare workflows, and workforce training. This transformation will require collaboration between healthcare professionals, technology experts, and policymakers to ensure a seamless integration of AI into healthcare delivery.



AI Health in the Future: Beyond Service Delivery

Artificial General Intelligence in Health

The development of artificial general intellige elligence (AGI) in healthcare is a promising bu ng but challenging prospect. AGI could potent potentially revolutionize healthcare by providi providing more comprehensive and personali sonalized care, accelerating medical research, earch, and improving disease prevention. Ho n. However, AGI development raises ethical c hical concerns about autonomy, accountabilit ntability, and the potential for misuse. Careful areful consideration and ethical guidelines are nes are crucial to guide the development and nt and implementation of AGI in healthcare. care.



AI Health in the Future: Beyond Service Delivery

Private Actor-Driven Innovation tion

The rapid advancement of AI in healthcare is being dri eing driven by private sector innovation, particularly t ularly the development of foundation models. These These models are large language models trained on ed on massive datasets, capable of performing a wide a wide range of tasks, including generating text, transl t, translating languages, and writing different kinds of inds of creative content. Foundation models have the ave the potential to accelerate innovation in healthca ealthcare, but their use raises concerns about data pri data privacy, bias, and the potential for misuse. Respo Responsible development and regulation of foundatio undation models are essential to ensure their ethical thical and beneficial application in healthcare.

AI Health in the Future: Beyond Service Delivery

Transnational Health Systems

Global Health Collaboratio

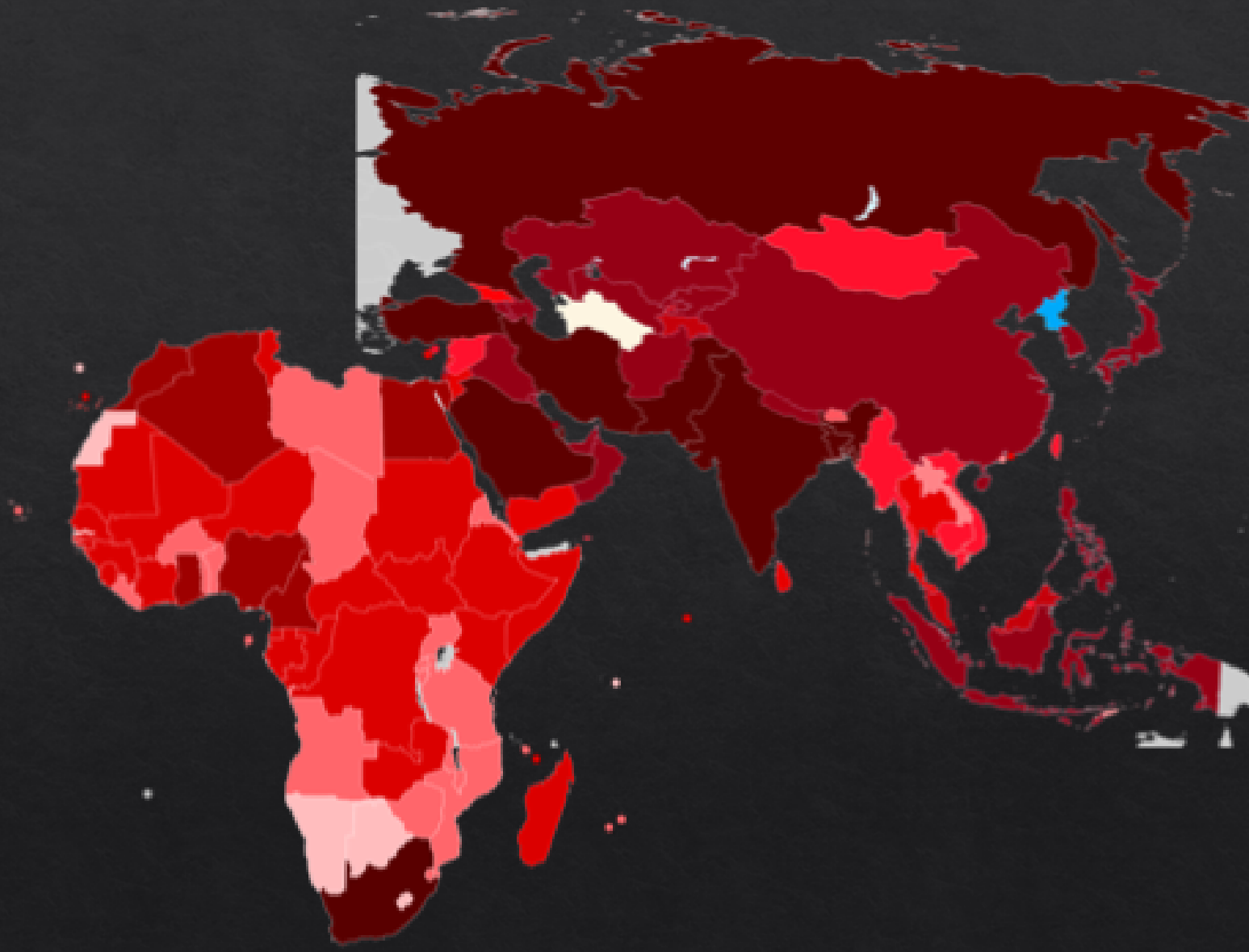
The increasing interconnectedn edness of global health systems ems necessitates greater collab llaboration and coordination. AI n. AI can facilitate this collabora boration by enabling the sharin aring of data, best practices, an , and research findings across b ss borders. This collaboration ca on can accelerate research, imp improve disease surveillance, a e, and facilitate the developme ment of more effective healthc thcare interventions.

Addressing Local Needs

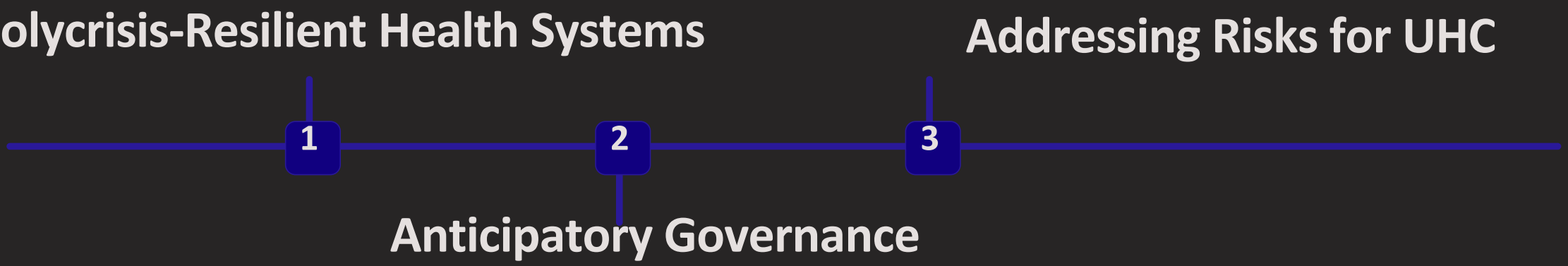
While global collaboration is ess ential, it is equally important to address the specific needs of lo cal communities. AI can help tai lor healthcare services to the u nique needs and circumstances of different regions. This requir es developing culturally sensitiv e AI applications that address th e specific health challenges face d by local populations.

Future Health System in Digitally Transitioning Worlds

One AI Health:
All medical research and clinical experience integrated into single or a few AI health system



Anticipatory Governance for AI Universal Health Coverage



Traditional governance models are struggling to keep pace with the rapid advancements in AI. T ments in AI. To effectively manage the risks and opportunities associated with AI, a shift towards hift towards anticipatory governance is needed. This approach involves proactively identifying p dentifying potential risks and developing strategies to mitigate them before they materialize. An aterialize. Anticipatory governance requires collaboration among governments, industry, and civ ustry, and civil society to ensure responsible and ethical development and deployment of AI. ent of AI.

Conclusion:
Origin of Future Health System