

A person in silhouette is walking from right to left across a dark, tiled floor in a futuristic hallway. The walls are white and feature large, glowing, geometric patterns that resemble stylized letters or symbols. The lighting is dramatic, with the person and floor in shadow against the bright wall panels.

Reciprocity.

How to Enable a Healthier World.

A baseline study
October 2018

Copenhagen Institute for **Futures** Studies
GLOBAL INDEPENDENT ADVISORS

Independent global advisors since 1969

The Copenhagen Institute for Futures Studies is a non-profit, independent institute founded in 1969 by former OECD Secretary-General Thorkil Kristensen for the betterment of our society.

The vision of the Copenhagen Institute for Futures Studies is to reduce complexity and advise decision-makers about the future, enabling them to make the best possible decisions in the present.



Figure: MEGATRENDS

Copenhagen Institute of Futures Studies: Megatrend Catalogue.

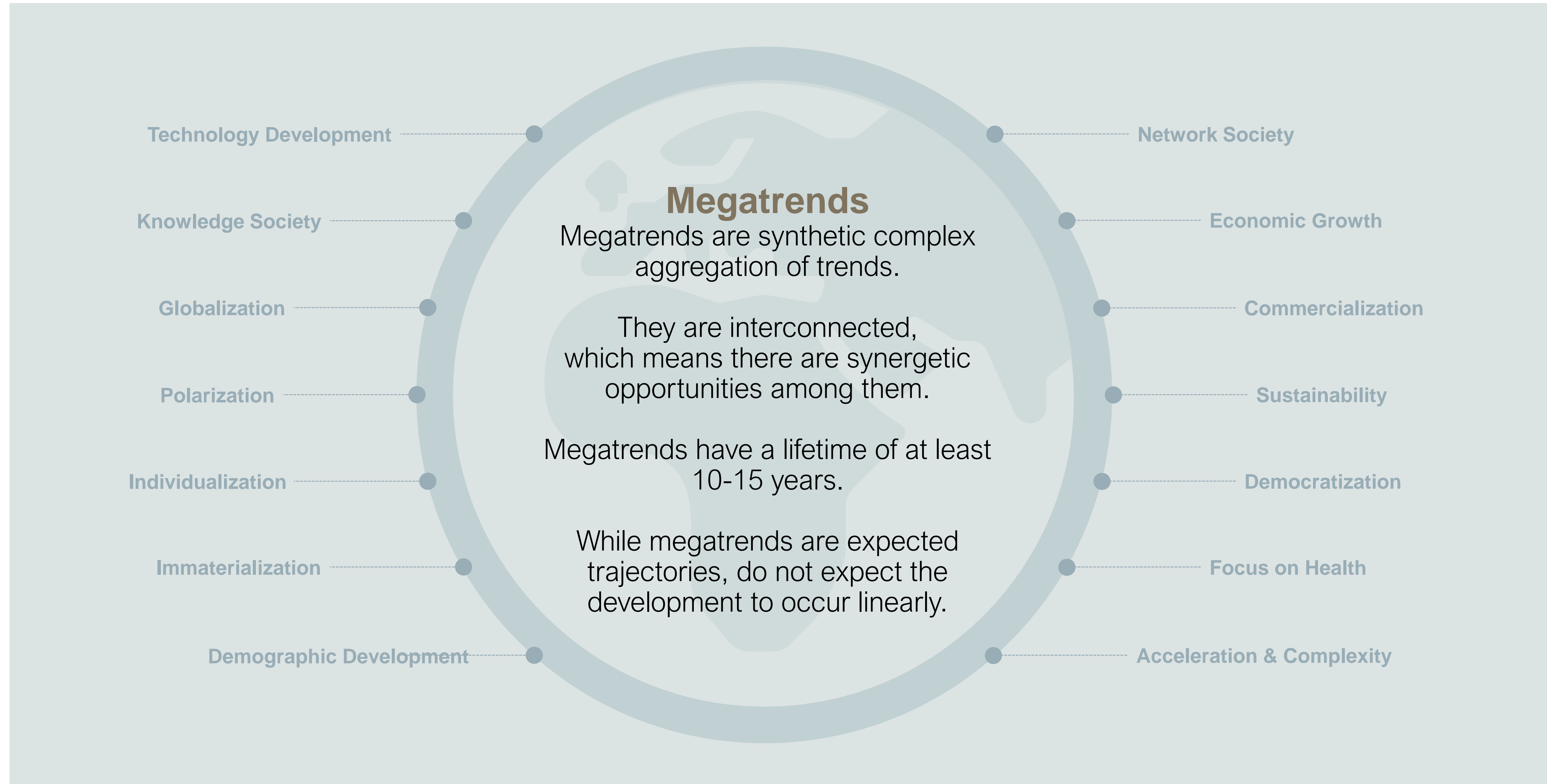


Figure: CIF'S ENGAGEMENT MODEL

Copenhagen Institute of Futures Studies works with a global client and member base that we advise on a strategic level.

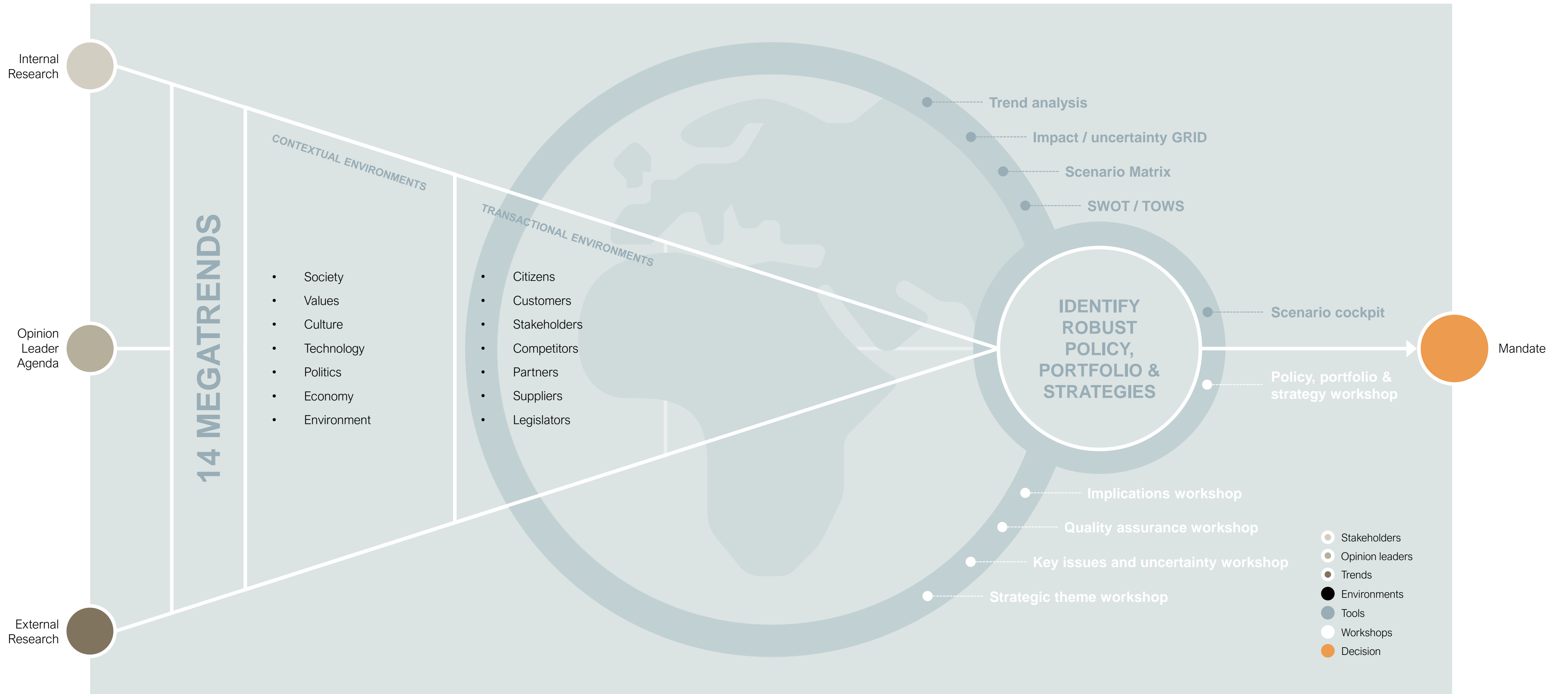
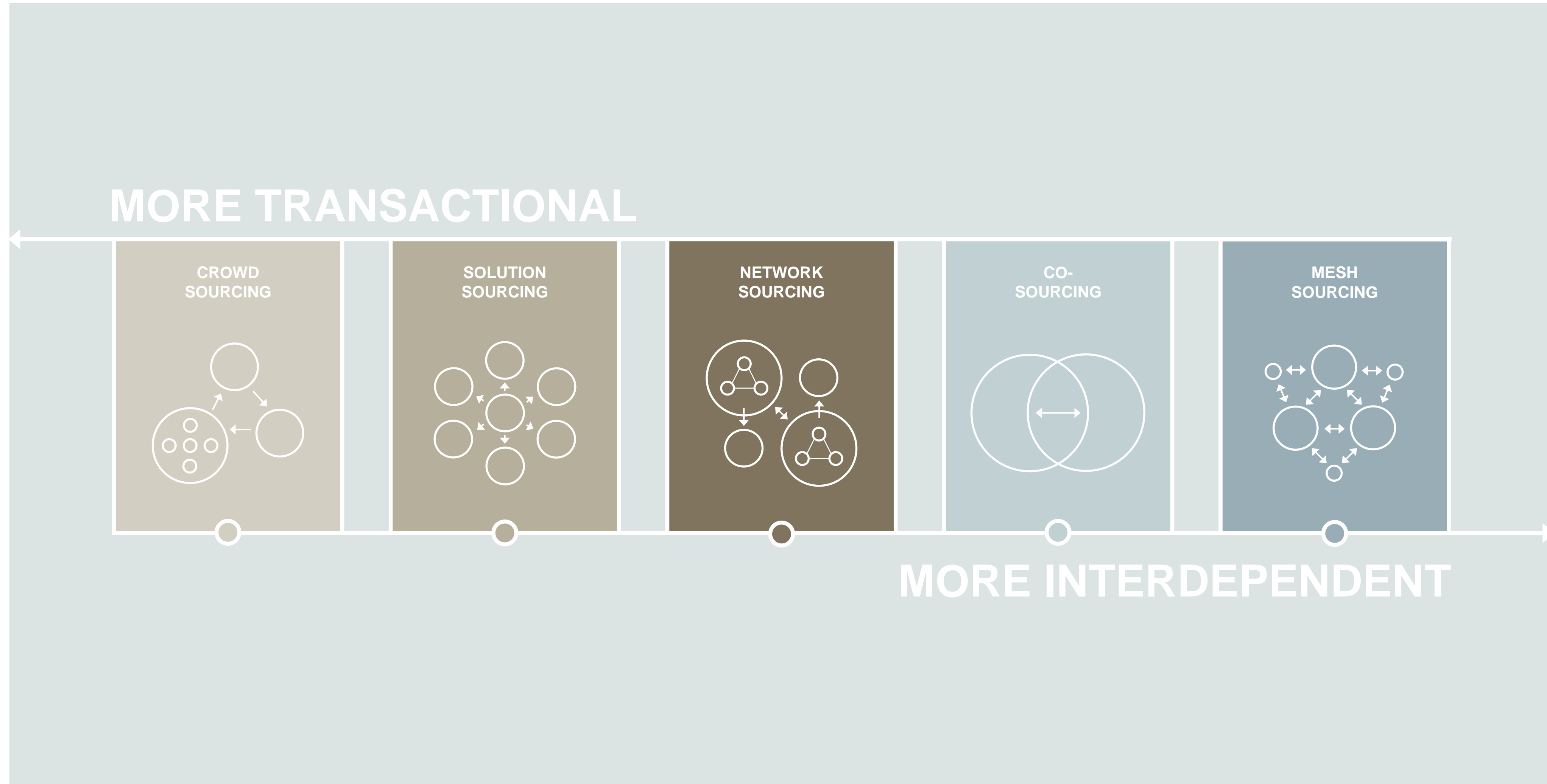


Figure: EMERGING BUSINESS MODELS

The different business models are not exclusive.



Section 1

Hyper-liquid subjectivity.

Existential frame

**What if everything is
accelerating and becomes
liquid, and subjectivity is the
only accountable experience?**

Section 2

The new biology: Humanomics.

**The new biology that
will change everything.**

AGCCCCTCAGGAGTCCGGCCACATGGAAACTCCTCATTCCGGAGGTCAGTCAGATTTACCCTGGCTCACCTTGGCGTCGCGTCCGGCGGGCAAAC
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3.2 billion

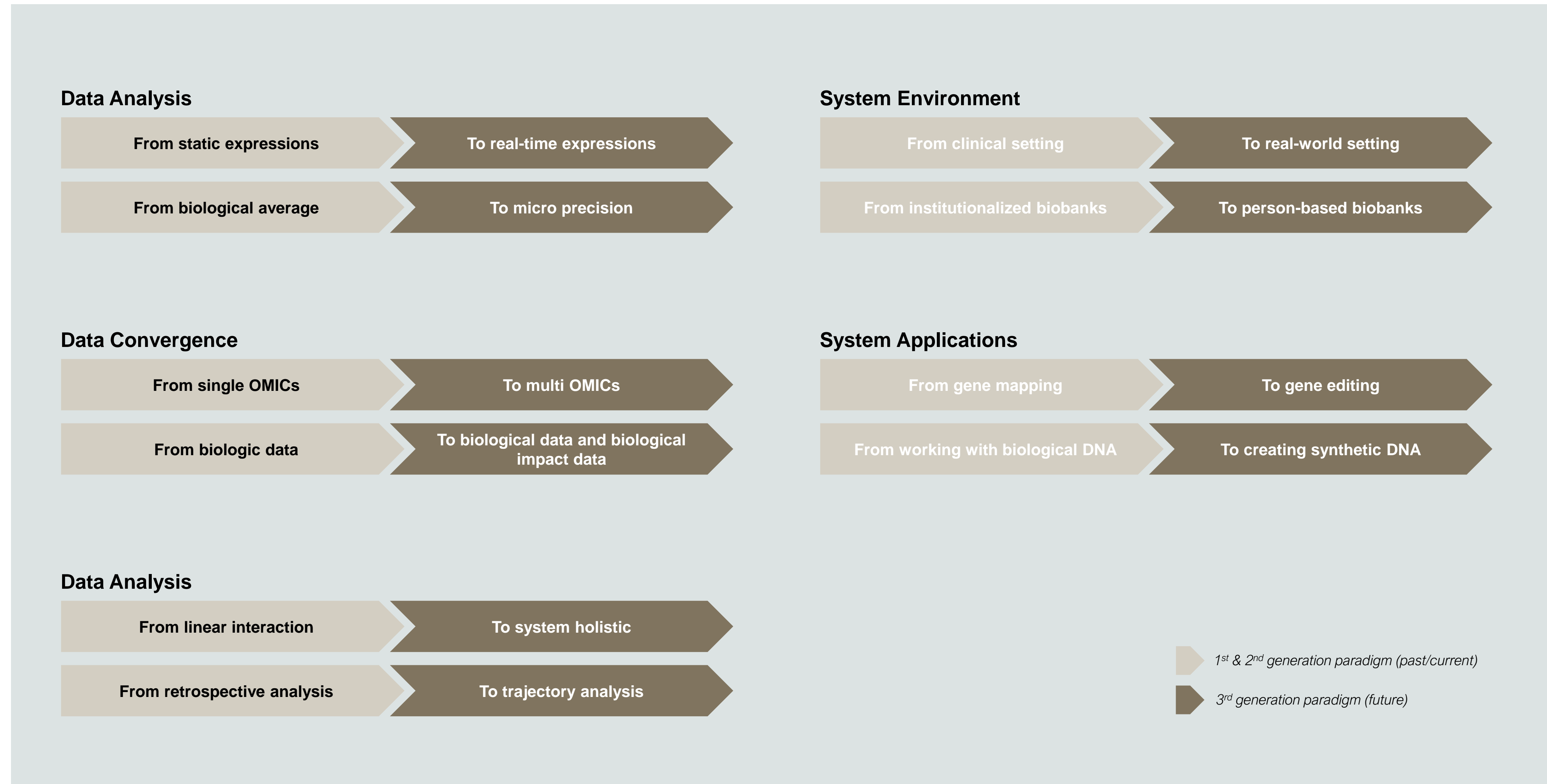
(no. of base pairs in our genome.)

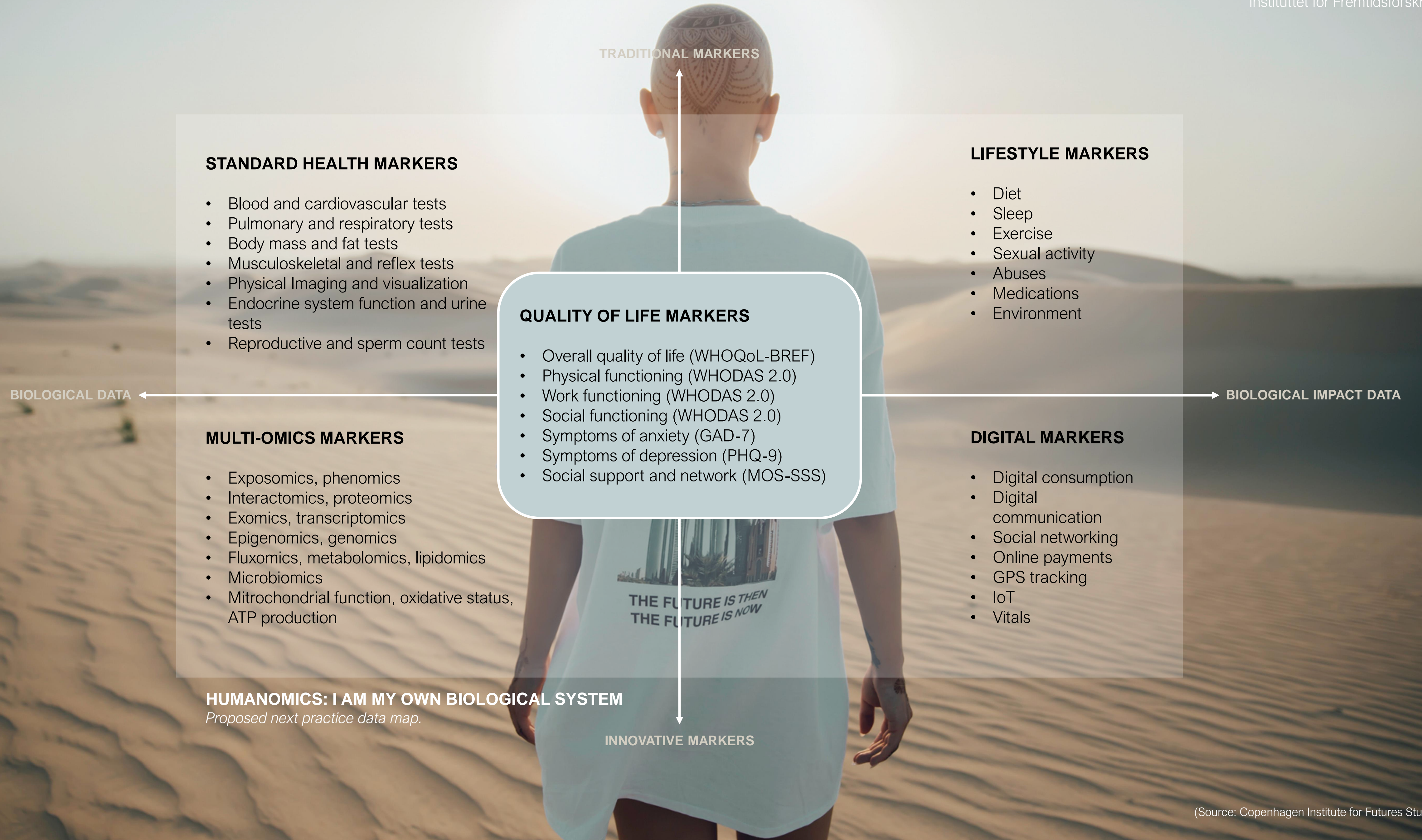
A person with a backpack is walking away from the camera on a beach. The scene is set at sunset or sunrise, with a hazy, orange-tinted sky. In the background, there are power lines and a tower. The overall mood is contemplative and forward-looking.

Go beyond the genome.

Figure: GO BEYOND THE GENOME

10 big shifts in biological understanding when going beyond the genome.





Mutual self- interest.



Preventive behaviours (6Ps).

A mutual self-interest that simultaneously drives down health-care costs (socio-economics), fuels new business models for “big 4” moving into healthcare (monetisation) and enables individuals to accelerate the highest attainable quality of life (QoL).



	REAL-TIME	FUTURE TRAJECTORY
CONTEXTUALIZE	<p>PSYCHO-COGNITIVE <i>Quality of life (QoL) literacy and overall health belief</i></p>	<p>PREDICTIVE <i>Measures taken to predict disease occurrence</i></p>
INTERFACE	<p>PERSONAL <i>Personalised information aggregation</i></p>	<p>PARTICIPATORY <i>Participation in shared decision making</i></p>
ACT	<p>POTENTIAL <i>Perceived benefits and barriers of self-efficacy</i></p>	<p>PREVENTIVE <i>Measures taken for disease prevention</i></p>

Figure: PREVENTIVE BEHAVIOURS (6Ps)



Data applications (6Vs).

A mutual self-interest that drives a reciprocal exchange of biological data and biological impact data to better enable individuals to engage in preventive health behaviours based on the right data applications.

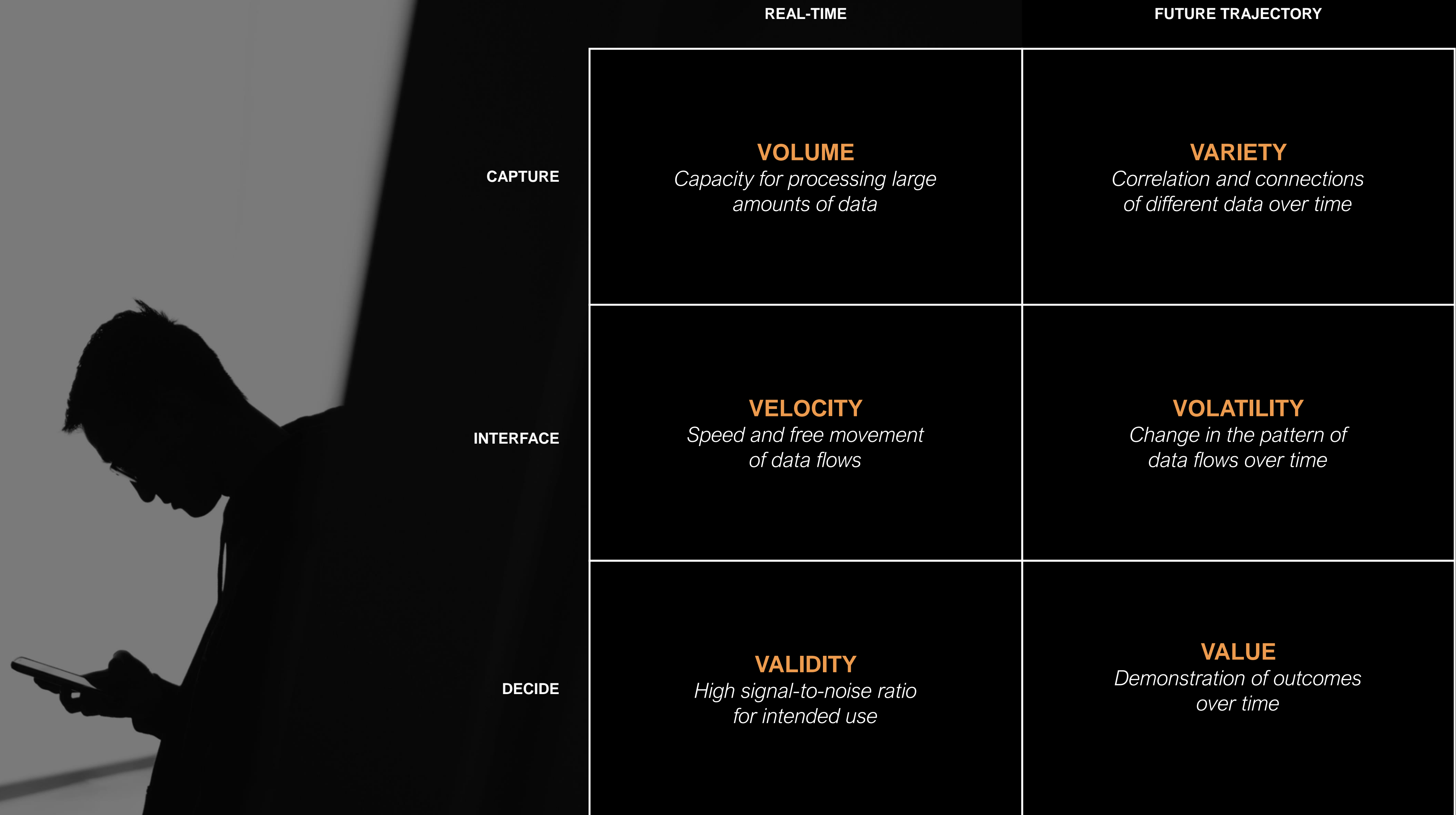


Figure: DATA APPLICATIONS (6Vs)

PAST.

Reactive lifestyle patterns dictated by centralised healthcare system

INCIDENT BASED SICK CARE

No humanomics system implemented



TIME

FUTURE.

Proactive lifestyle patterns dictated by decentralised health consumer

CONTINIUM BASED HEALTH CARE

Humanomics system implemented

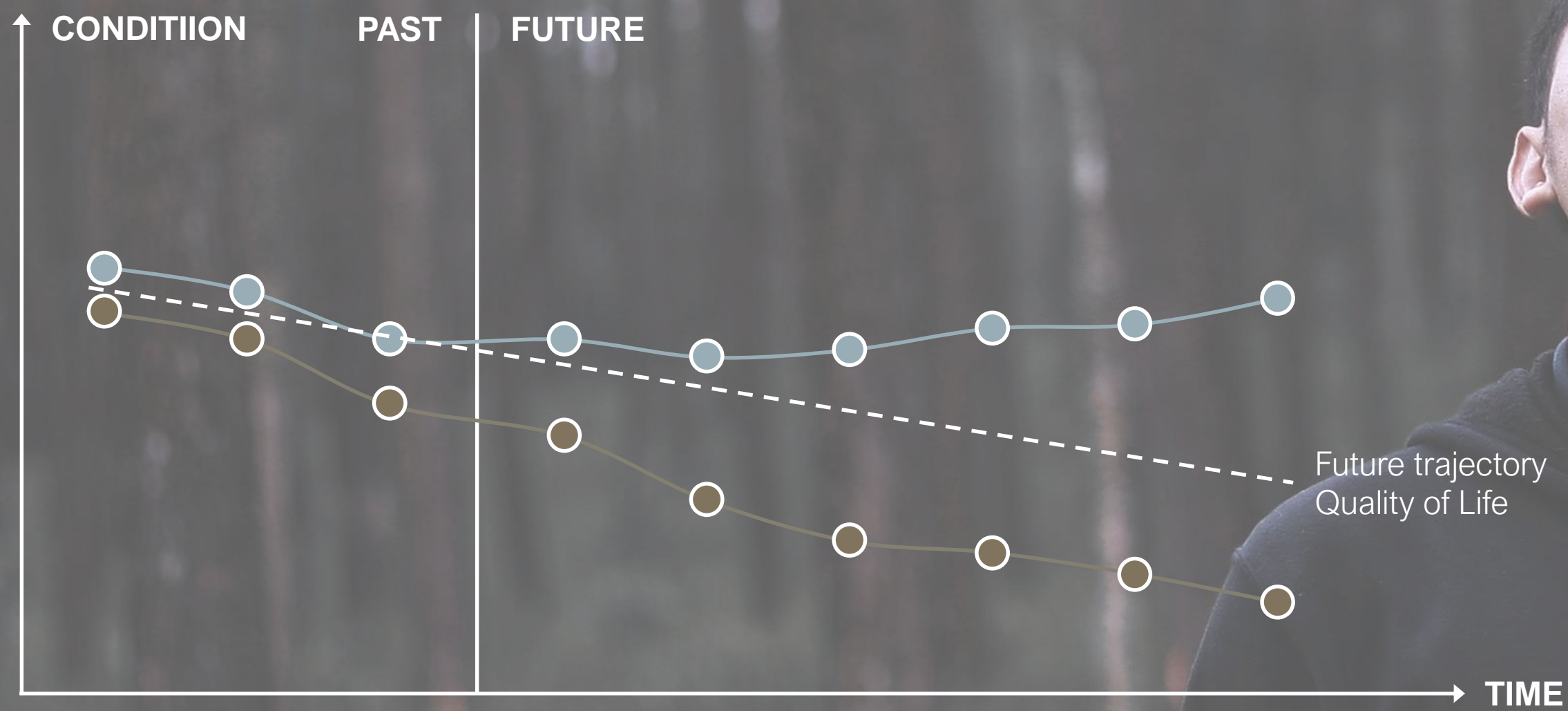


TIME

- Individual(s) involved
- Health Care Professional(s) involved

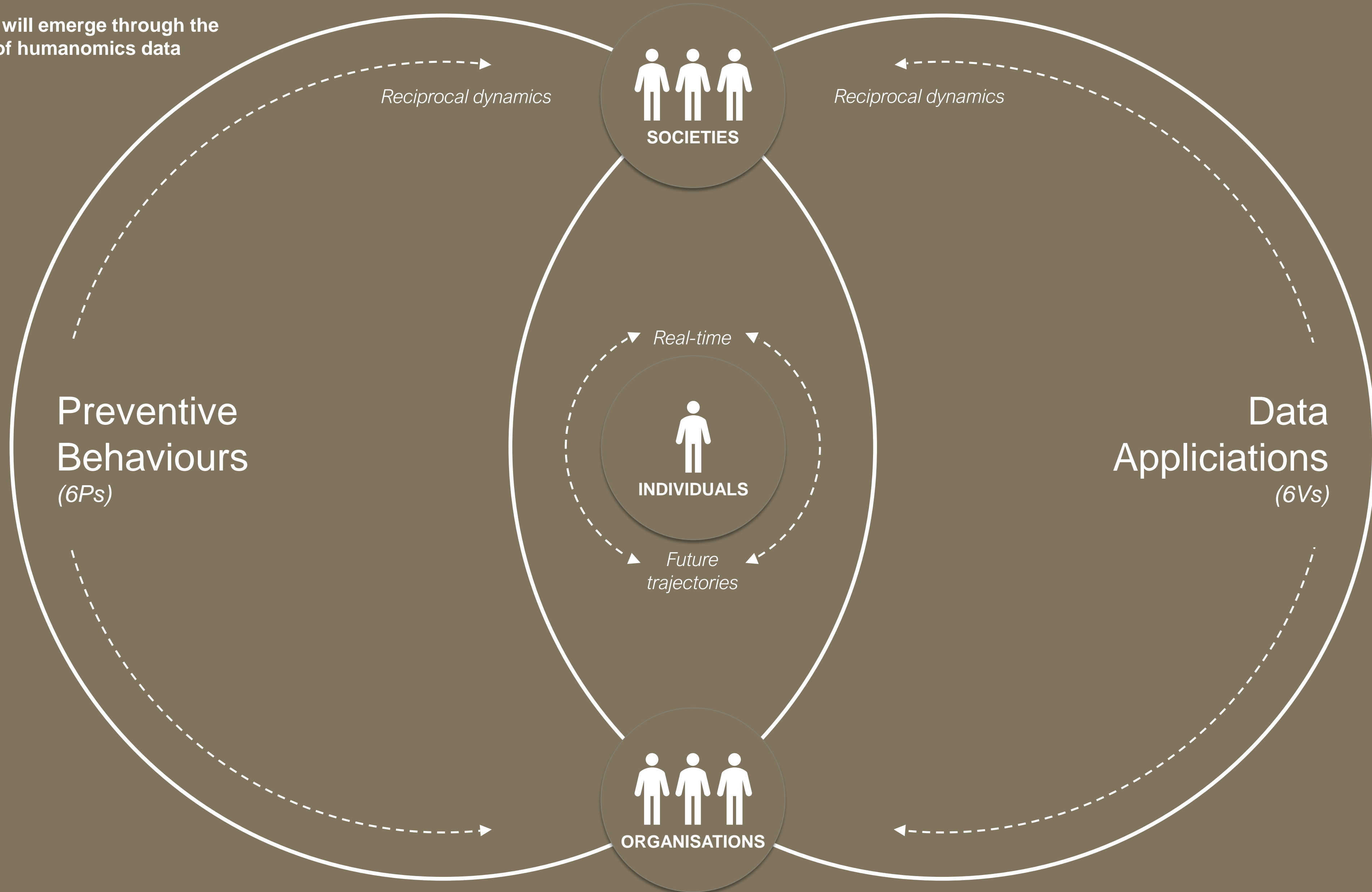
FUTURE TRAJECTORY.

Given my status, what is the best outcome I can hope to achieve, and how do I get there?



- Health trajectory
- "Life moment" trajectory

Figure: New meaning will emerge through the reciprocal exchange of humanomics data



THE \$100 TIPPING POINT.

That will democratise personal health.



PERSONAL HEALTH DATA.

The big shift of focus needed to innovate
healthcare.

WHAT WE KNOW
WE CAN'T DELIVER

**DATA
ANONIMITY**

WHAT WE KNOW
WE NEED

**DATA
APPLICATION**

Transparency.

Moving beyond the consent of future generations.

With transparency and traceability.

Section 3

The new framework: Reciprocity.



Data is the only renewable resource.

That can transcend the boundaries of our ecosystem.



**The application of data will
fundamentally change core
business practices.**



“In the twenty-first century, however, data will eclipse both land and machinery as the most important asset, and politics will be a struggle to control the flow of data. If data becomes concentrated in too few hands, humankind will split into different species.”

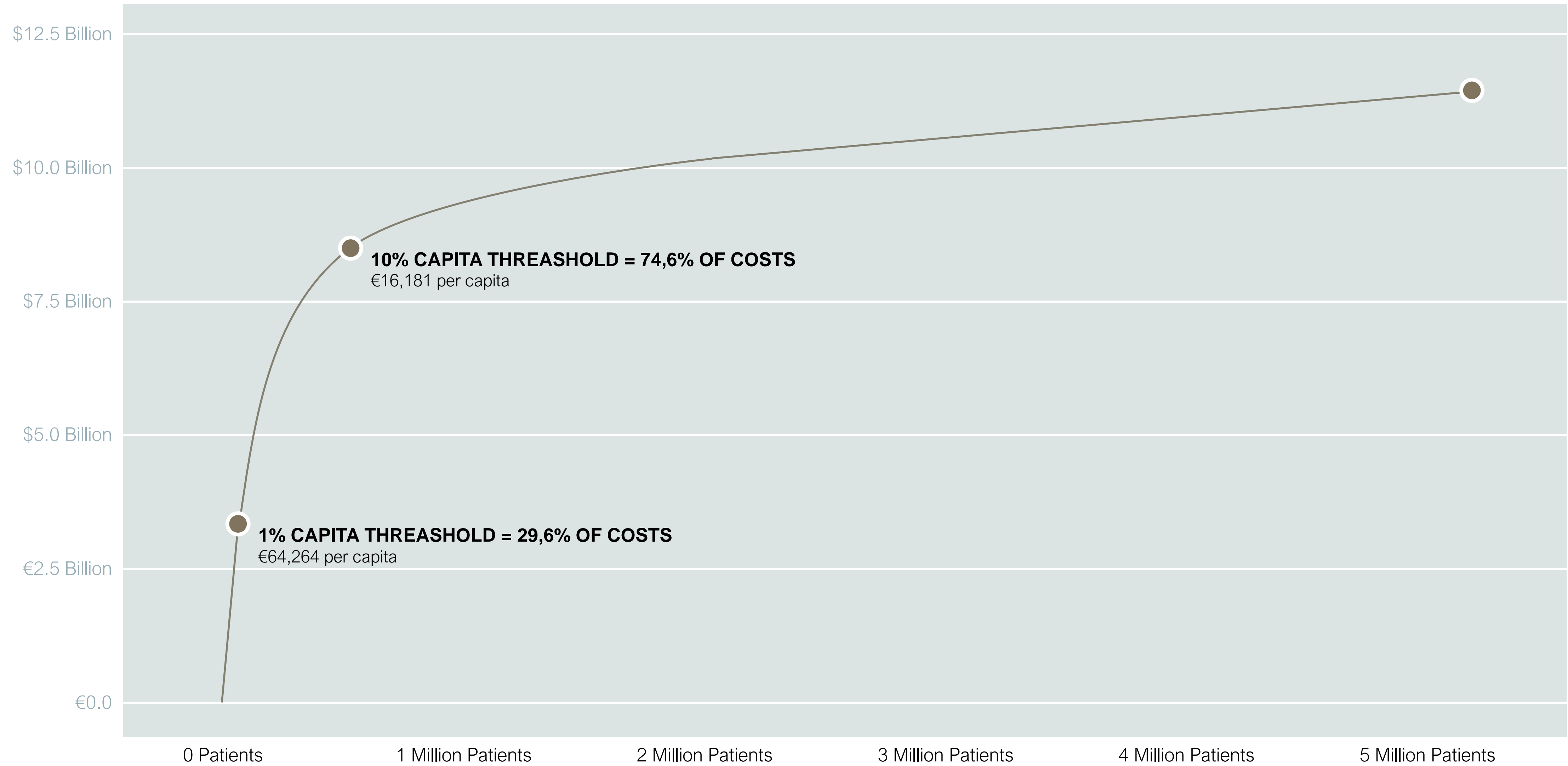
Yuval Noah Harari, philosopher of time and author of *Sapiens* and *Homo Deus*

546%.

Increase in global health spending from 1995 to 2040 (base case).

Figure: ACCUMULATED HEALTH CARE COST PER CAPITA

Accumulated health care costs per capita in Denmark 2013.



The sunken cost system.

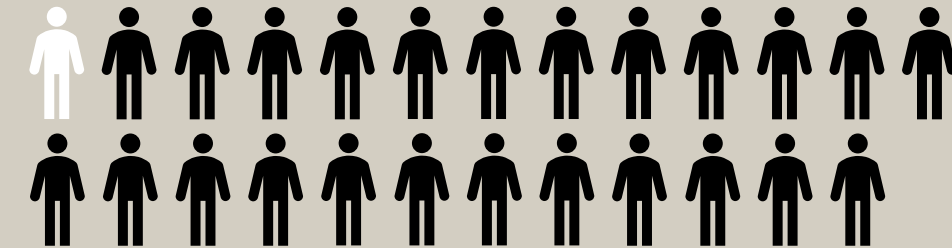
IMPRECISION MEDICINE

For every person they do help (white), the ten highest grossing drugs in the United States fail to improve the conditions of between 2 and 24 people (black).

1. ABILIFY (aripiprazole)
Schizophrenia



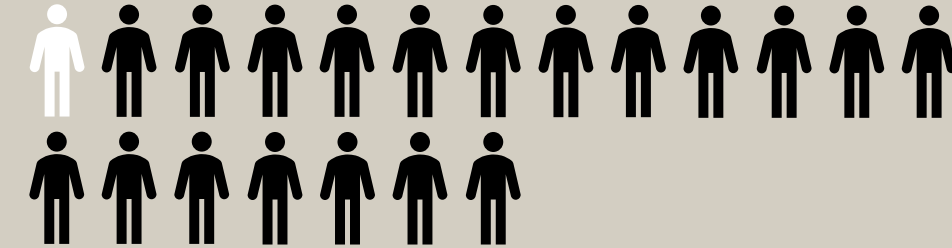
1. NEXIUM (esomeprazole)
Heartburn



3. HUMIRA (adalimumab)
Arthritis



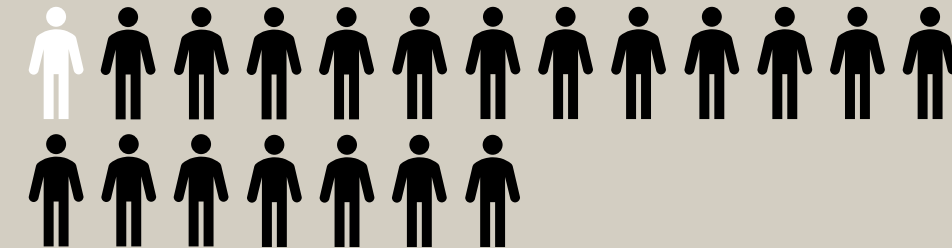
4. CRESTOR (rosuvastatin)
High cholesterol



5. CYMBALTA (duloxetine)
Depression



6. ADVAIR DISKUS (fluticasone propionate)
Asthma



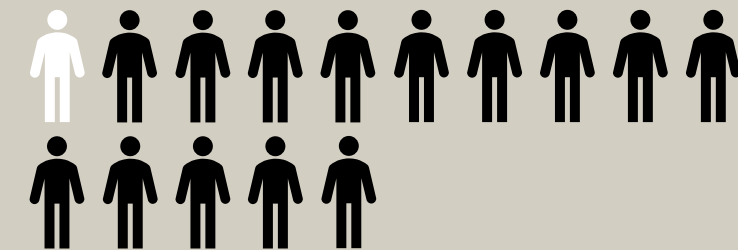
7. ENBREL (etanercept)
Psoriasis



8. REMICADE (infliximab)
Crohn's disease



9. COPAXONE (glatiramer acetate)
Multiple sclerosis



10. NAULASTA (pegfilgrastim)
Neutropenia



“Precision medicine requires a different type of clinical trial that focuses on individual, not average, responses to therapy.”

(Nicholas J. Schork, Ph.D.)

Figure: FROM TREATMENT TO EARLY HEALTH INTERVENTION.

Early health intervention impact vs. treatment impact during the chronic disease journey.

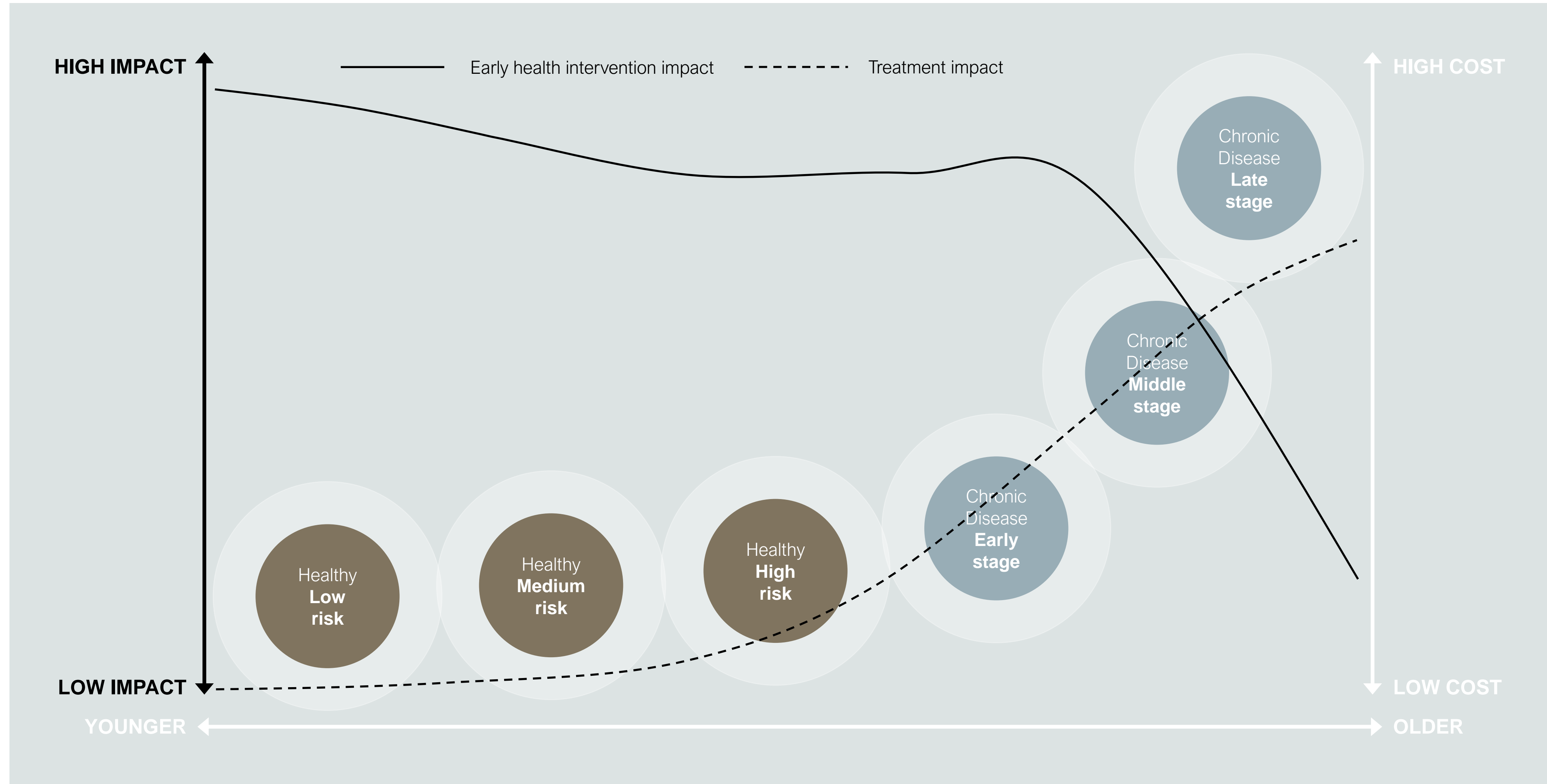












Figure: PERFORMANCE EVALUATION OF CURRENT PAYMENT SYSTEM
 Evidence based evaluation of current performance criteria across 5 existing incentive models.

	 FEE-FOR-SERVICE	 DIAGNOSIS-RELATED-GROUPS	 CAPITATION	 GLOBAL BUDGET	 PAY-FOR-PERFORMANCE
No. of cases	↑	↑	↑	↓	-
No. of services per case	↑	↓	↓	↓	-
Improved expenditure control	↓	-	↑	↑	-
Improved technical efficiency	-	↑	↑	-	↑*
Improved quality	-	-	-	-	↑*
Improved coordination between providers	-	-	-	-	↑*

↑ Increase in performance ↓ Decrease in performance - Neutral or lack of evidence * Bundled with other payment types

Hypothesis: IS THE CURRENT PAYMENT SYSTEM FUTURE-PROOF?

Evaluation of future performance criteria across 5 existing incentive models..

	 FEE-FOR-SERVICE	 DIAGNOSIS-RELATED-GROUPS	 CAPITATION	 GLOBAL BUDGET	 PAY-FOR-PERFORMANCE
<i>Long-term 'personal health contracts beyond borders</i>	↓	↓	-	↓	↓
<i>Meaningful application of health data beyond borders</i>	↓	↓	-	↓	-
<i>Meaningful application of healthy behaviours beyond borders</i>	↓	↓	↓	↓	-
<i>Early health interventions beyond ICD-10 categories</i>	↓	↓	↓	↓	↓
<i>Shared accountability beyond stakeholder categories</i>	↓	↓	↓	↓	-
<i>Innovation of next practice beyond disciplinary categories</i>	↓	↓	↓	-	↓

↑ Increase in performance ↓ Decrease in performance - Neutral or lack of evidence * Bundled with other payment types

Section 4

The new players: Big tech moving into healthcare.

Figure: 4 BIG HORSEMEN OF CHINA

The big 4 tech companies of China will lead a tech-driven healthcare revolution.

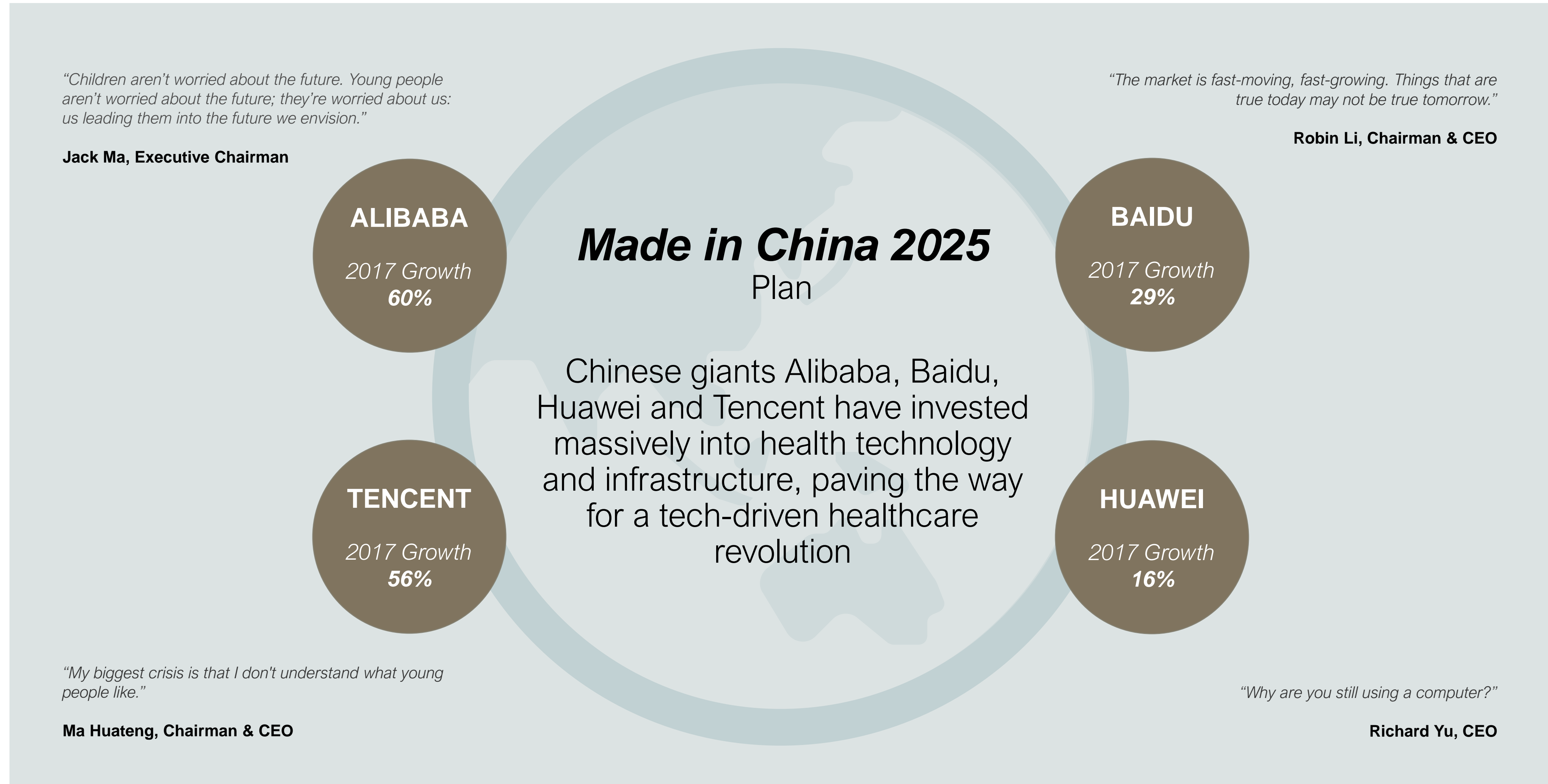
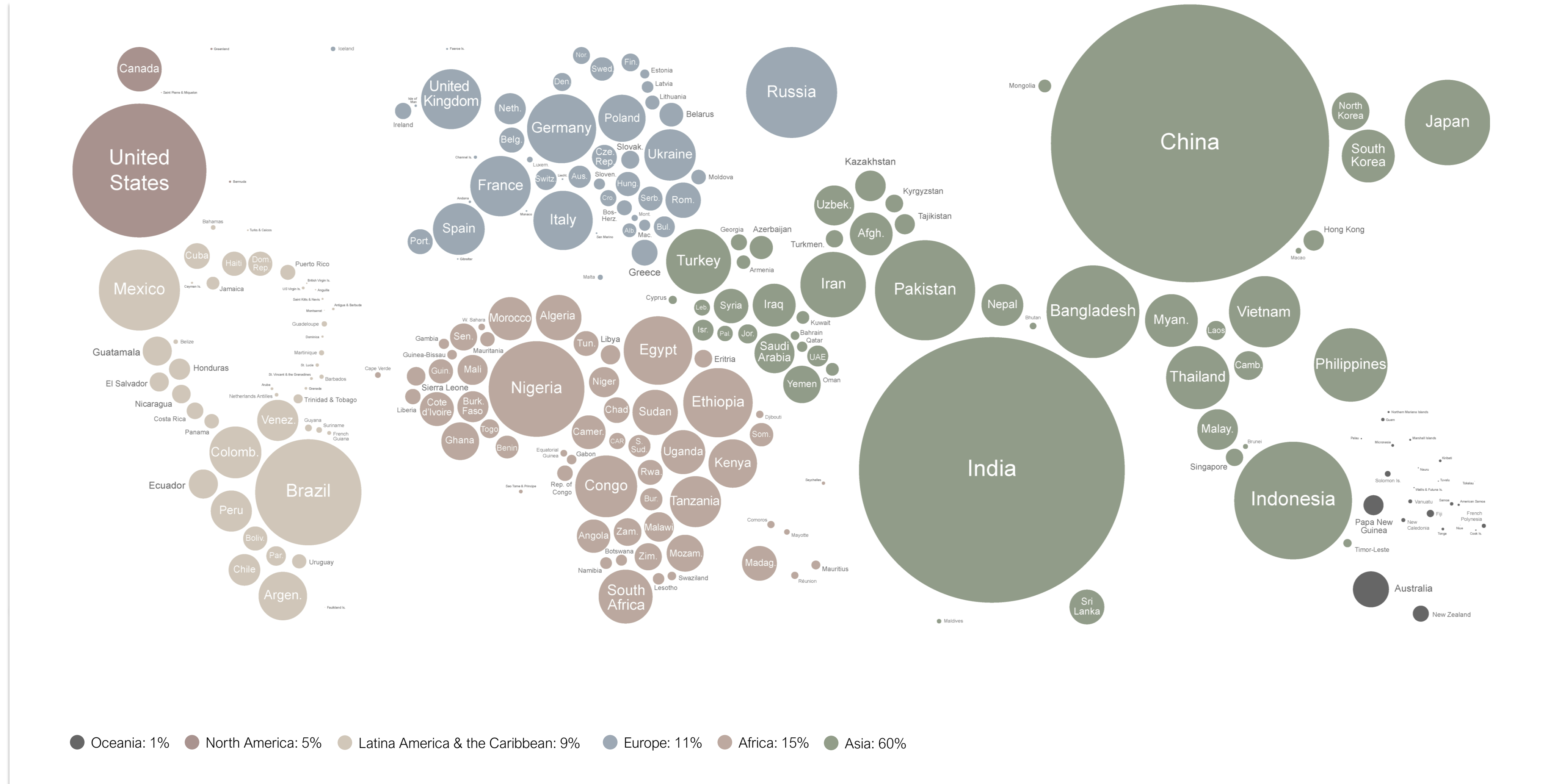


Figure: POPULATION OF THE WORLD
Asia dominates the world's population..



The Chinese Social Credit System.

*Dystopian tool for surveillance?...
or future agent of convergence?*

While widely criticized in the West, the emerging social credit system in China has the potential to built much-needed trust both among Chinese citizens and between citizens and institutions. Though much work is needed to ensure that individuals are protected from abuse, the system has already demonstrated incentivization and nudging capabilities that could be applied to a new health system built around personal, preventive health.

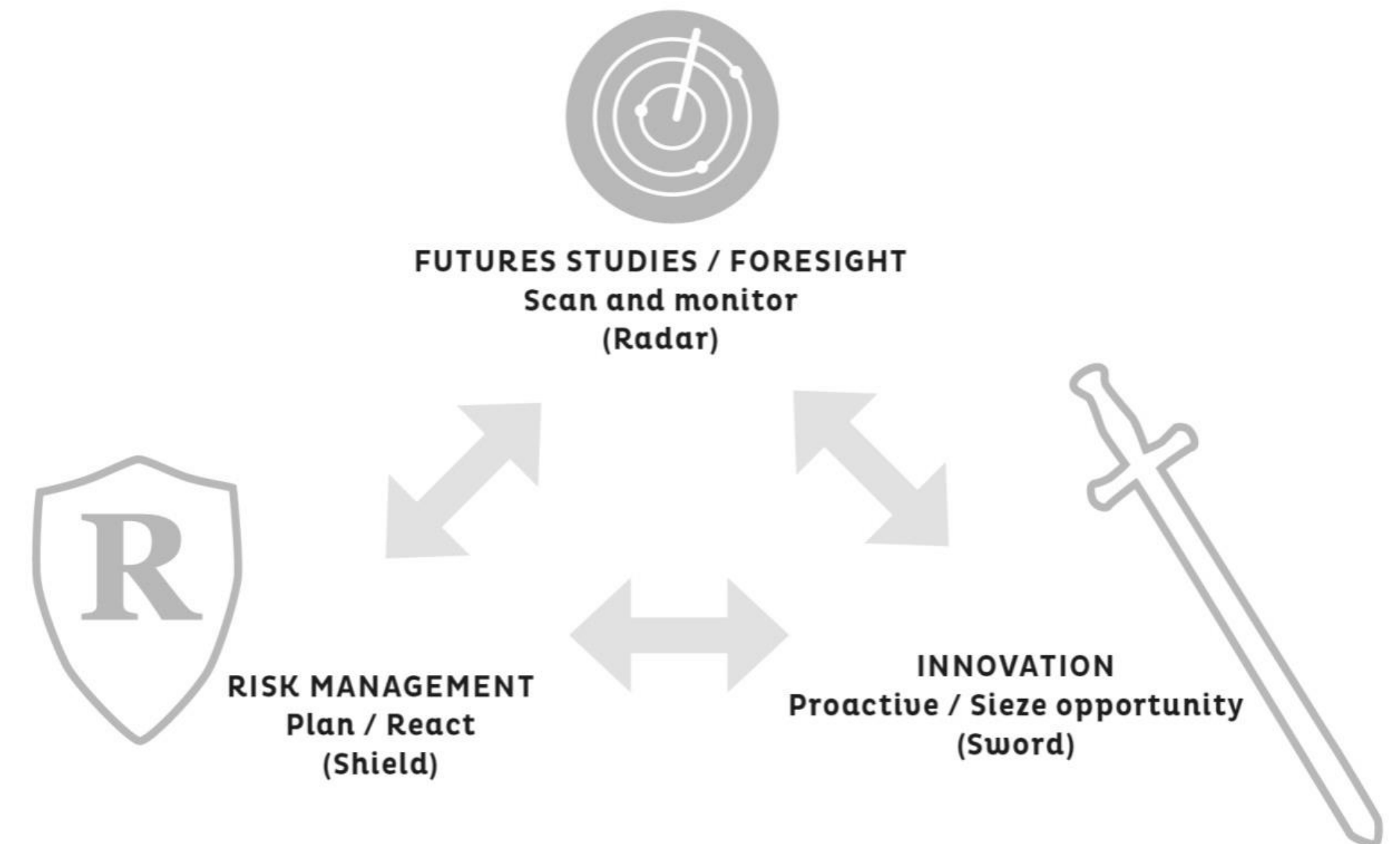
HELP BUILD RESILIENCY

Scenarios help organisations develop a critical mindset to seize opportunities and reduce risks as they emerge by learning to adapt to a constantly changing environment

Sword: Innovation capacity

Shield: Disruption preparedness

Radar: Anticipatory thinking



We are trying to solve “wicked problems”.

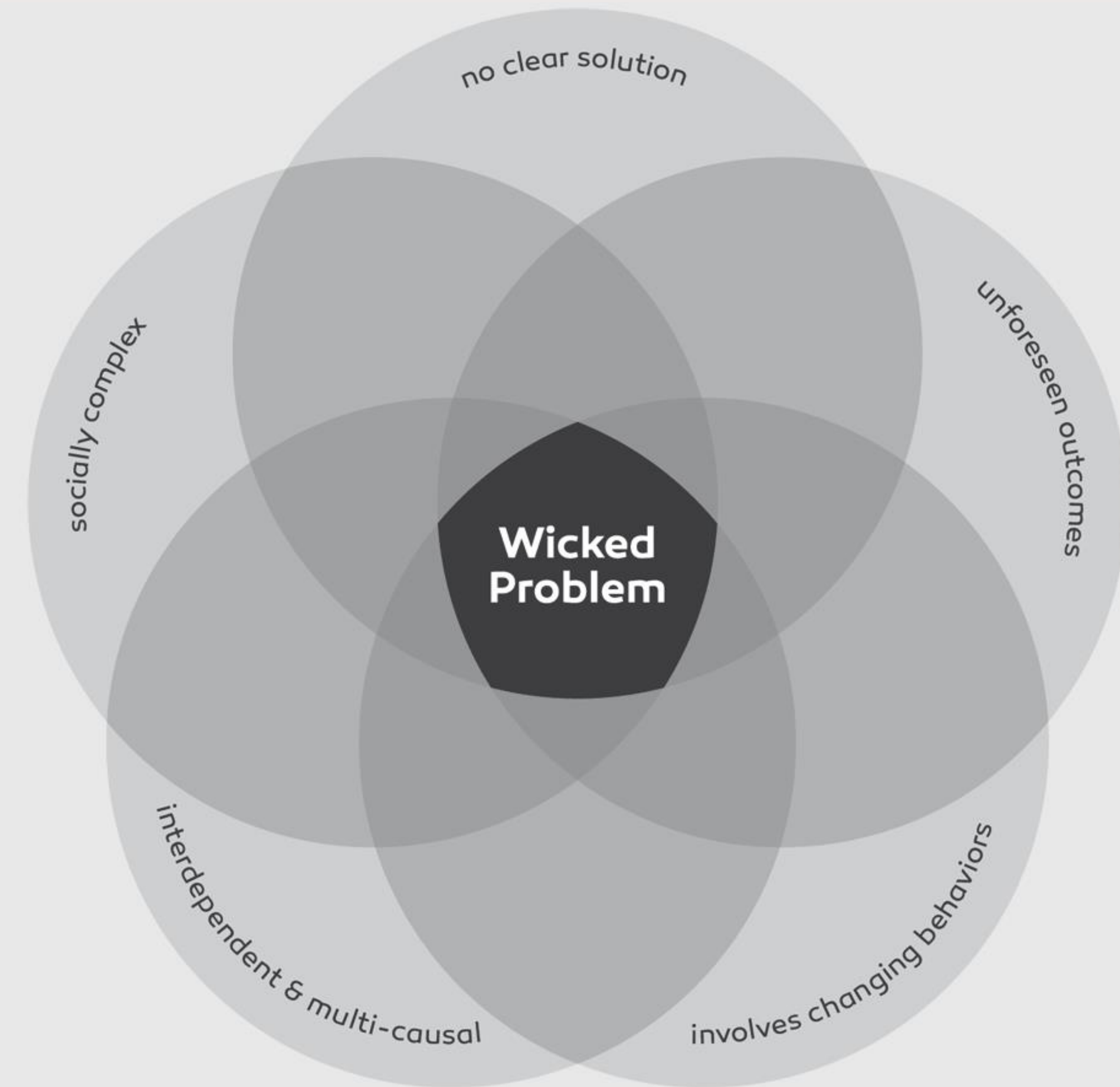
Primary

- No clear solution
- Attempts to address the problem often lead to unforeseen outcomes
- Solutions involved changing behaviours
- Many interdependencies are often multi causal
- Socially complex

Secondary

- Difficult to clearly define
- Frequently not stable
- Rarely is the responsibility of only one stakeholder
- Can be characterized by chronic policy failure
- Requires adaptive leadership

Wicked problems need to be addressed in a holistic way rather than from just one of the many stakeholders' perspectives - some of which can actually be conflicting with each other. Stakeholders must work together to ensure a full understanding of the problem and to share a commitment to possible solutions. Because wicked problems have no simple identifiable root cause, and often there are interactions between several causal factors, solutions require broader, more collaborative and innovative approaches.



The background of the slide features a warm, orange-toned sunset sky. In the foreground, the dark silhouettes of three people are visible, their arms raised in a gesture of celebration or triumph. The overall mood is positive and hopeful.

Mutual Self-interest.

All incentive structures should reward the identification and utilization of 'shared value' across stakeholders in the health ecosystem.

I have a finite shelf life, humanity should have an infinite duration.

How can I join others to build a healthier world?

How do we all win?



	Think big	Start small	Move fast
Who are “we”?	?	?	?
When do we reach the tipping point?	?	?	?
What should we all stop doing?	?	?	?
Where should we all start to play together?	?	?	?
Why do we all have skin in the game?	?	?	?
How do we all win?	?	?	?

TRANSITION OF GAMEPLAN.

