Greater Manchester-
Resilient City Region & Resilient People

Professor Kate Ardern: Director of Public Health Wigan Council

The Picture in Greater Manchester

£56 Billion GVA
Fastest growing LEP in the country

2.7 Million People
Growth of 170,000+ in the last decade

104,000 People Unemployed
7.8% (above UK average of 6.2%)

77.7 Male Life Expectancy
England average: 78.3

81.3 Female Life Expectancy
England average: 82.3

112,000
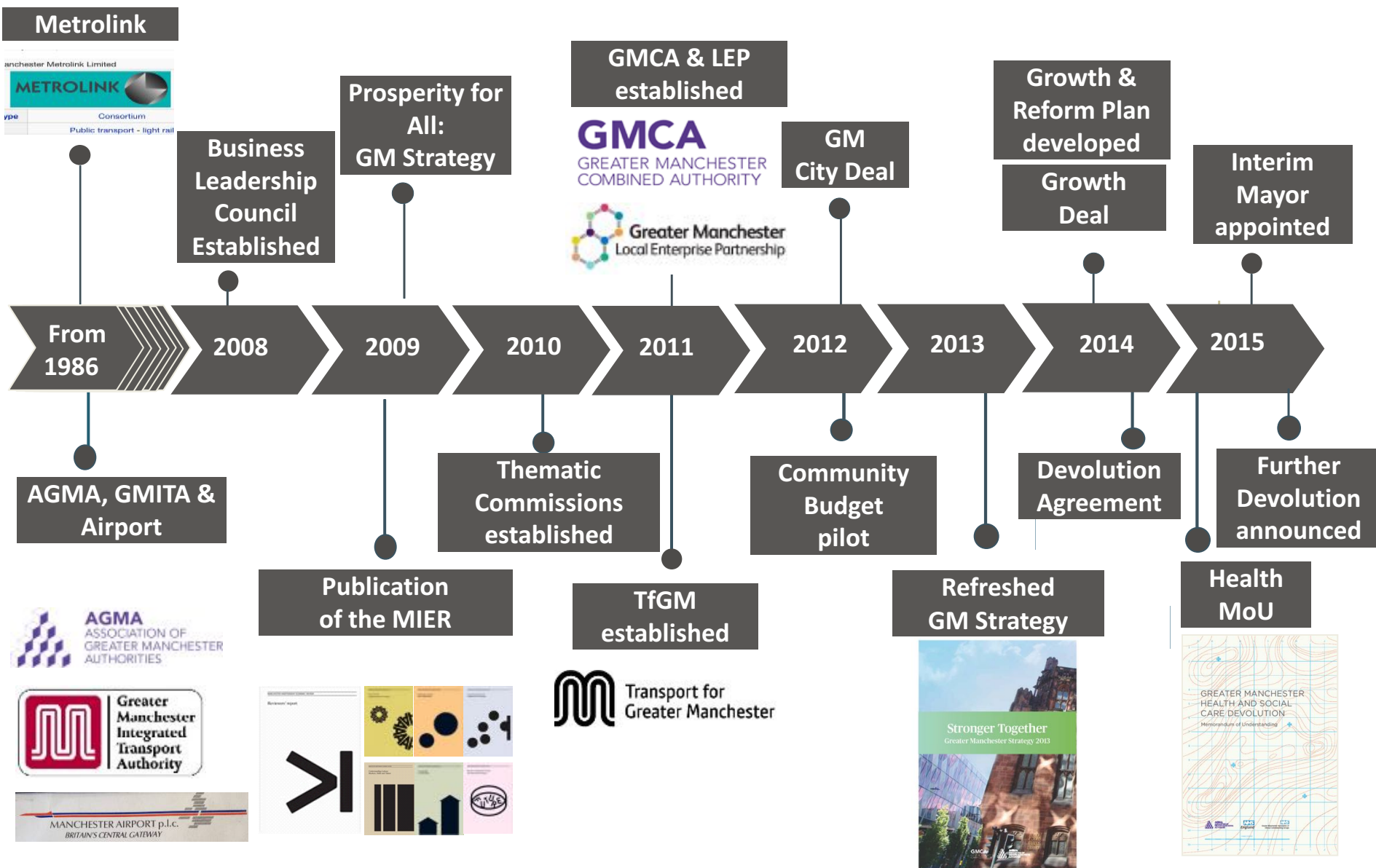People on long term sick and inactive

10 Local Authorities

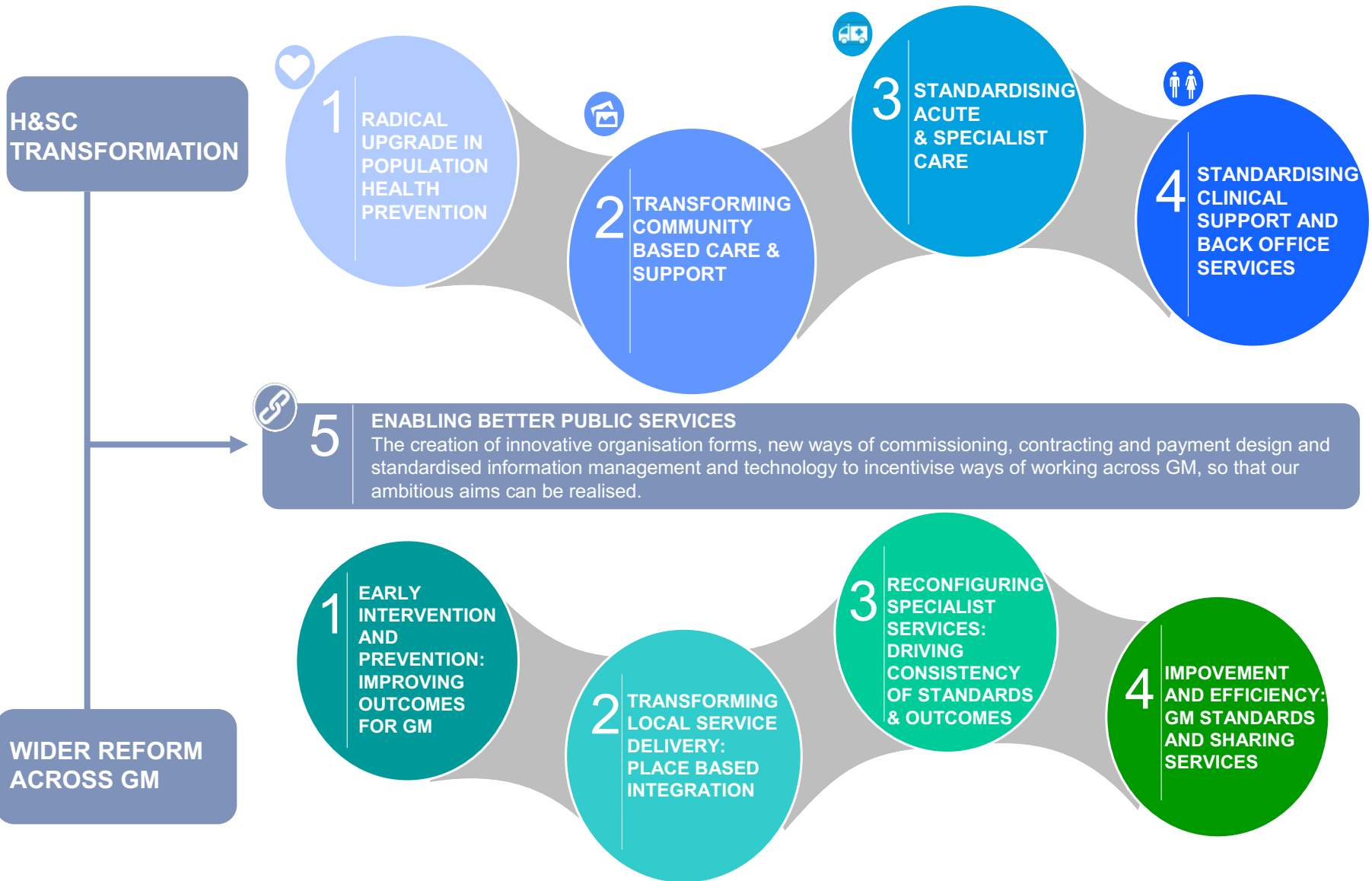12 Clinical Commissioning Groups

15 Trusts and FTs: Acute, Mental Health, Community and Ambulance

GM Track Record of Collaboration

Aligning Reform Across Sectors in GM

H&SC TRANSFORMATION

1 RADICAL UPGRADE IN POPULATION HEALTH PREVENTION

2 TRANSFORMING COMMUNITY BASED CARE & SUPPORT

3 STANDARDISING ACUTE & SPECIALIST CARE

4 STANDARDISING CLINICAL SUPPORT AND BACK OFFICE SERVICES

5 ENABLING BETTER PUBLIC SERVICES
The creation of innovative organisation forms, new ways of commissioning, contracting and payment design and standardised information management and technology to incentivise ways of working across GM, so that our ambitious aims can be realised.

WIDER REFORM ACROSS GM

1 EARLY INTERVENTION AND PREVENTION: IMPROVING OUTCOMES FOR GM

2 TRANSFORMING LOCAL SERVICE DELIVERY: PLACE BASED INTEGRATION

3 RECONFIGURING SPECIALIST SERVICES: DRIVING CONSISTENCY OF STANDARDS & OUTCOMES

**4** IMPOVEMENT AND EFFICIENCY: GM STANDARDS AND SHARING SERVICES

Public Service Reform Principles

- A **new relationship** between public services and citizens, communities and businesses = Do with, not to.

- An **asset based approach** that recognises and builds on the strengths of individuals, families and our communities rather than focusing on the deficits.

- **Behaviour change** in our communities that builds independence and supports residents to be in control

- A **place-based approach that redefines services** and places individuals, families, communities at the heart

- A stronger prioritisation of **well being, prevention and early intervention**.

- An **evidence led** understanding of risk and impact to ensure the right intervention at the right time

A Single Greater Manchester Strategy

Originally developed in 2009

- Informed by the Manchester Independent Economic Review's (MIER) evidence base

- Aligned all partners behind priorities

- Strategic framework for policy and decision making

- Pitch to Government
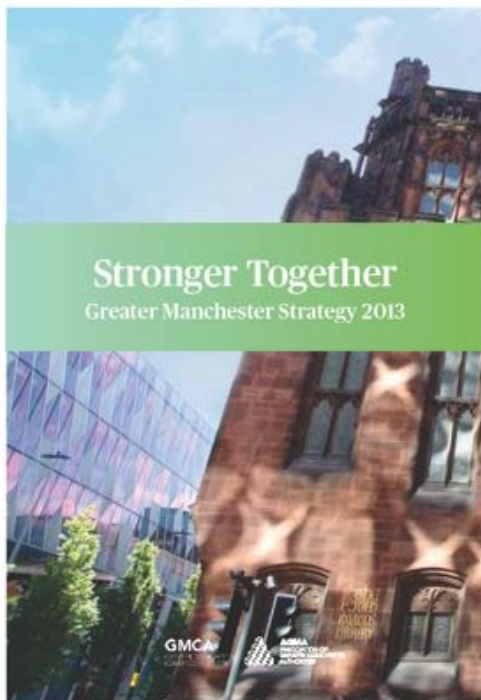
Updated and re-positioned 2013

- Reflects the economic challenges we now face

- Greater focus on public service reform agenda

- Stronger on delivery and implementation

"We will be known for a good quality of life, low carbon economy and a commitment to sustainable development alongside an outstanding natural environment."

Health and Social Care Devolution

Wigan Council

Vision:
To deliver the greatest and fastest possible improvement to the health and wellbeing of the 2.8m people of Greater Manchester

We will do this by:

1. Creating a transformed health and social care system which helps more people stay well and takes better care of those who are ill

2. Aligning our health and social care system far more widely with education, skills, work and housing

3. Creating a financially balanced and sustainable system

4. Making sure the system remains clinically safe throughout.

£6bn mainstream investment
CCGs, Local Authorities & NHS England

Locality Plans — 10x implementation plans

GM HSC Strategic Plan — 1x implementation plan

Transformation Themes

Improvement Programmes

Radical Transformation Programmes

£6bn

£22bn
Total public sector spending

£450m transformation investment

2015   2016   2017   2018   2019   2020   2021

Deal for Health & Wellness

NHS | **Wigan Council**

Our part

Support families to give children the best start

Create training opportunities and jobs

Provide seven day access to GP services

Help communities to support each other

Help you to remain independent for as long as possible

Provide leisure facilities to help keep you healthy and active

Your part

Lead a healthy lifestyle and be a good role model

Take advantage of training and job opportunities

Register with a GP and go for regular check ups

Get involved in your community

Support older people to be independent

Make the most of leisure facilities and be active

Achievements

- In the past 3 years **Healthy Life expectancy** has increased in Wigan by 1 month for males and 23 months for females

- In the past 6 years **Early deaths attributed to CVD** have reduced by 29% for males and 25% for females

- In the past 6 years **Early deaths attributed to Cancer** have reduced by 16% for males and 9% for females. Wigan is now similar to the national rate (previously Wigan has had a significantly higher rate).

- **Smoking rates** for routine and manual workers is for 2nd year running in the England average range at 26.3% (England 26.5%) (overall prevalence is 17.7% 2nd year running in England average range)

- **Smoking rates at time of delivery** has reduced from 16.7% in 2016 to 14.8% in 2017 – this is the greatest improvement for four years (England 10.6%)

- **Hospital stays for alcohol related harm** have reduced from 2358 in 2014/15 to 2192 in 2015/16. This is the second year that numbers have decreased and the gap between Wigan and the England average has reduced significantly since 2013/14

- In the 3 years up to February 2016 **utilisation of outdoor space** for exercise/health reasons increased from 18.6% to 23.8%.

- %of adults who are **physically active** up from 50% to 55% over last year now England average

Confident Place, Confident People.

Greater Manchester Spatial Framework

Wigan Council

"Achieving improvements in the health, skills and quality of life of residents, by securing urban regeneration, enhancing the green infrastructure network and combating climate change will be as important as delivering high levels of new development"

GMSF, Natural Capital & Wellness

A significant improvement in the average health of Greater Manchester residents, and a reduction in health disparities, will be supported through a range of measures including the following priorities:

1. Require new development to maximise its positive contribution to healthy communities and minimise its negative health impacts, both by avoidance and mitigation, as far as practicable;

2. Support healthy lifestyles, including through the provision of a high quality green infrastructure network across Greater Manchester, supporting an increase in the proportion of trips that are made by walking and cycling, and the targeted control of premises that sell unhealthy food and alcohol;

3. Reduce the risks to human health, including by taking an integrated catchment-based approach to addressing flood risk, reducing levels of air pollution, providing cooling and shading to help combat high temperatures, and designing out crime;

4. Increase prosperity and social inclusion, including by making provision for new employment floorspace and supporting improvements to skills;

5. Increase the supply of high quality and affordable homes that meet minimum size and accessibility standards;

6. Enable better health care, including by requiring the provision of sufficient health facilities in conjunction with new developments and supporting the successful operation of Greater Manchester's hospitals.

GM 100 Resilient Cities Programme

100 Resilient Cities—Pioneered by the Rockefeller Foundation is dedicated to helping cities around the world become more resilient to the physical, social & economic challenges that are a growing part of the 21st century.

100RC supports the adoption & incorporation of a view of resilience that includes not just the shocks—earthquakes, fires, floods, etc.—but also the stresses that weaken the fabric of a city & its people on a day to day or cyclical basis.

The 100RC network provides resources to cities to develop a roadmap to resilience along four pathways:

• Financial and logistical guidance for establishing an innovative new position in city government, a Chief Resilience Officer, who will lead the city's resilience efforts;

• Expert support for development of a robust resilience strategy;

• Access to solutions, service providers, and partners from the private, public and NGO sectors who can help them develop and implement their resilience strategies; and

• Membership of a global network of member cities who can learn from and help each other.

E-mail: gm.devo@nhs.net

Website: www.gmhealthandsocialcaredevo.org.uk

Twitter: @GMHSC_Devo #takingcharge

With thanks: Sarah Broad (AGMLT),Pete Burt, Graham Workman (IHL) & GM CCRU

A blueprint for healthy and resilient cities

Dr Sotiris Vardoulakis
Research Director

INSTITUTE OF OCCUPATIONAL MEDICINE

www.iom-world.org

Percentage urban
- 80 or over
- 60 to 80
- 40 to 60
- 20 to 40
- Less than 20

Urban agglomerations
- Megacities of 10 million or more
- Large cities of 5 to 10 million
- Medium–sized cities of 1 to 5 million
- Cities of 500 000 to 1 million
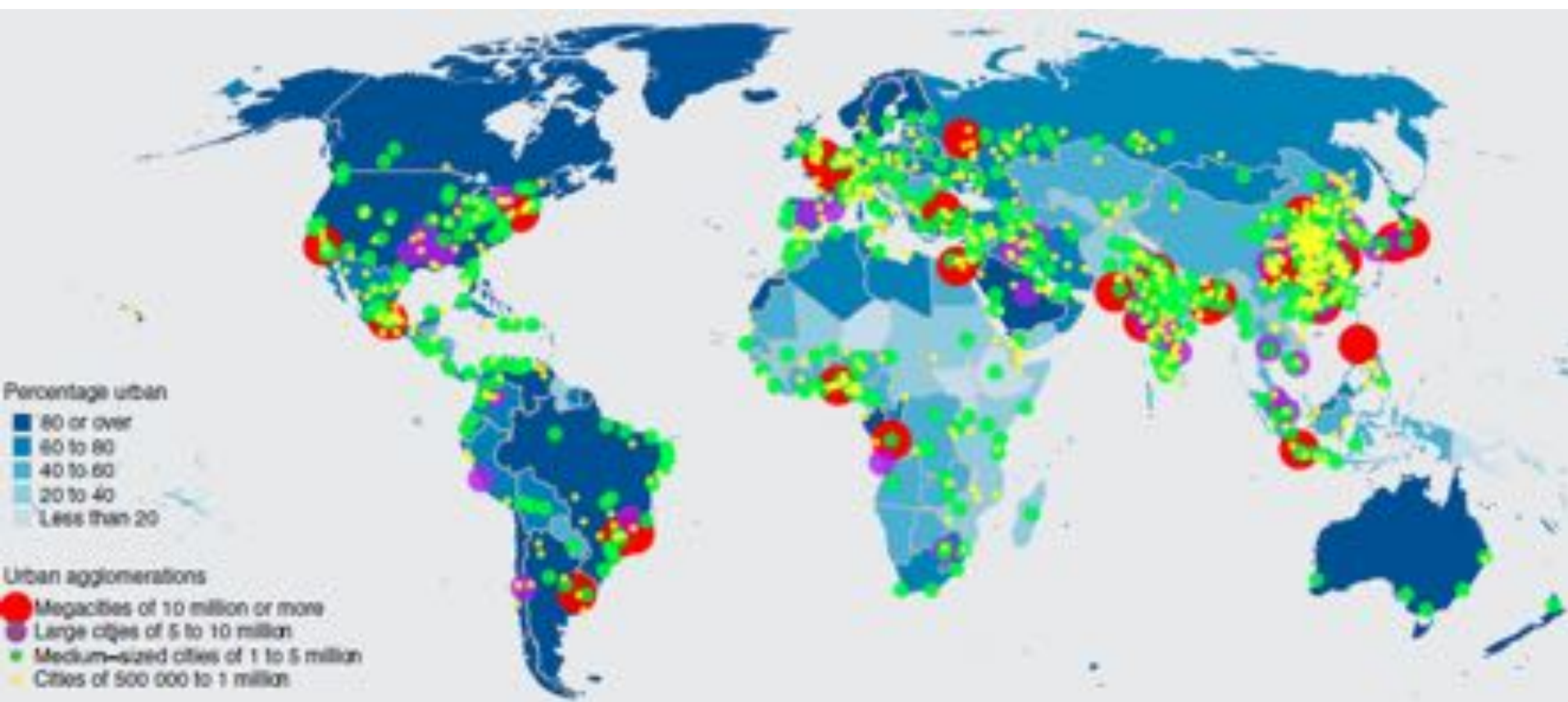
(UN World Urbanization Prospects, 2014)
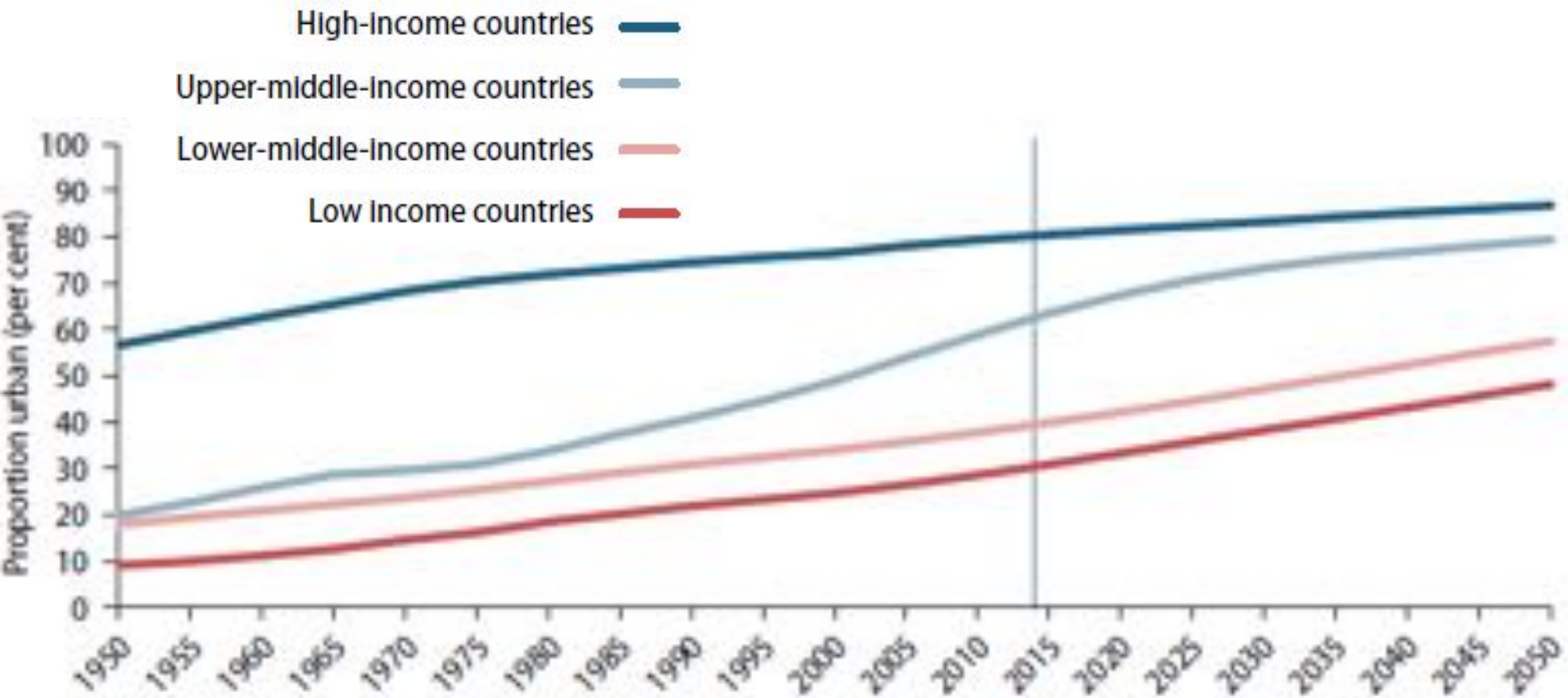
(UN World Urbanization Prospects, 2014)

Environmental health risks in cities

Air pollution

Road accidents

Traffic noise

Floods

Heatwaves

Lack of green spaces

lthy Sustainable Ci...

ATE CHANGE *AND* IMPROVE WELLBE...

- increasing urban green space
- using sustainable urban drainage (SuDS)
- making temperatures in homes comfortable in winter and summer

- overloaded drainage
- overheating homes
- co...
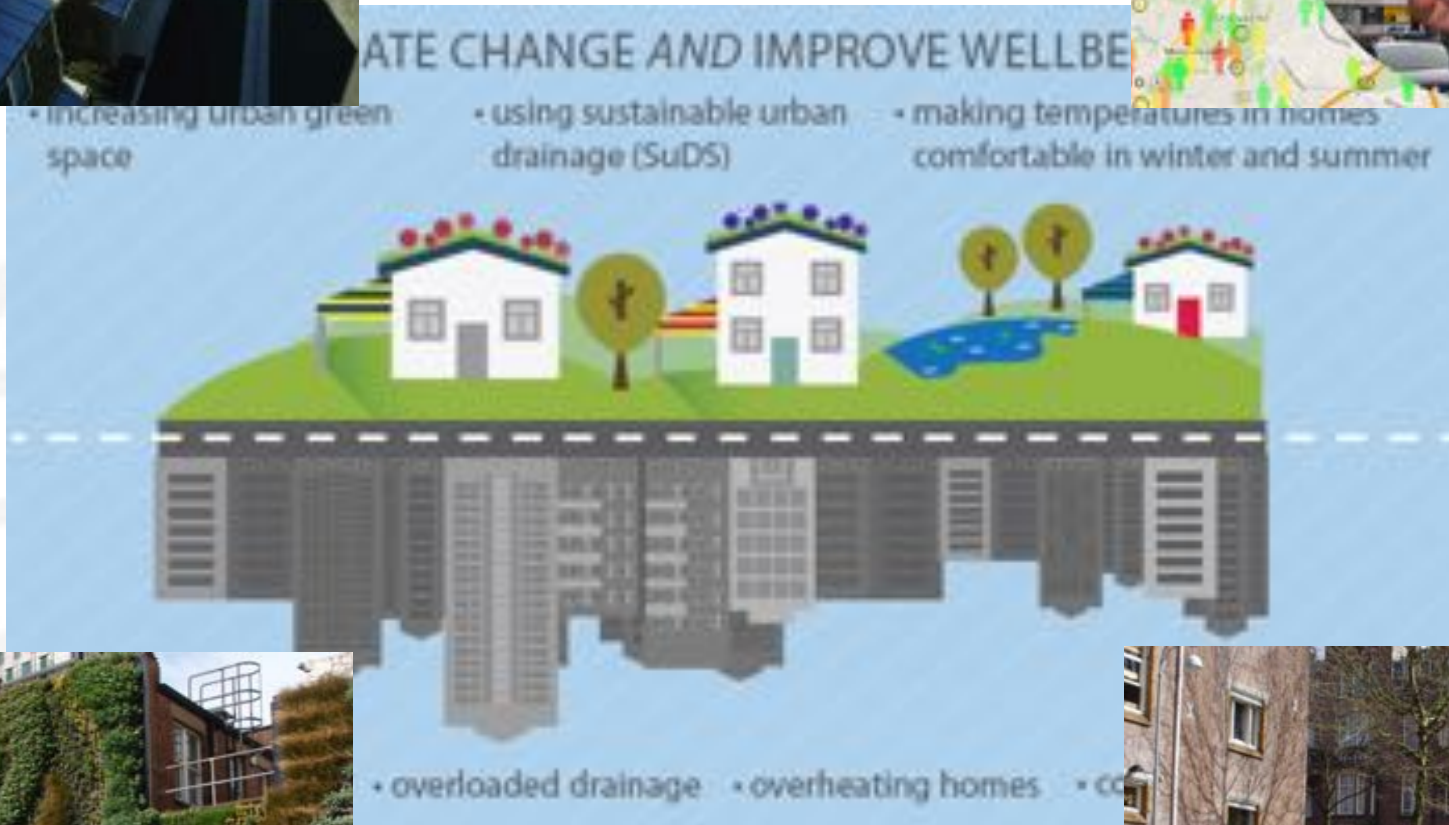
(Climate Change Risk Assessment 2017 –

Assessing urban population vulnerability and environmental risks across an urban area during heatwaves – Implications for health protection

CrossMark

H.L. Macintyre [a,*], C. Heaviside [a,b,c], J. Taylor [d], R. Picetti [b], P. Symonds [d], X.-M. Cai [c], S. Vardoulakis [b,c,e]

(a) August 2003 heatwave
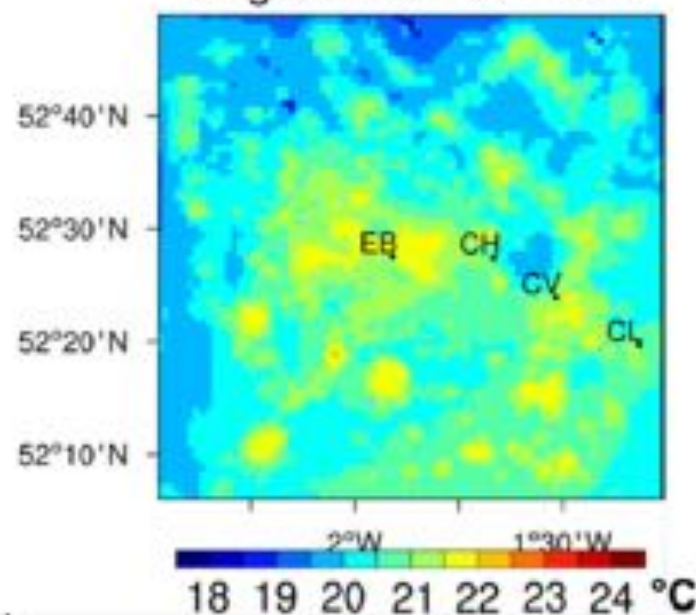
(b) July 2006 heatwave
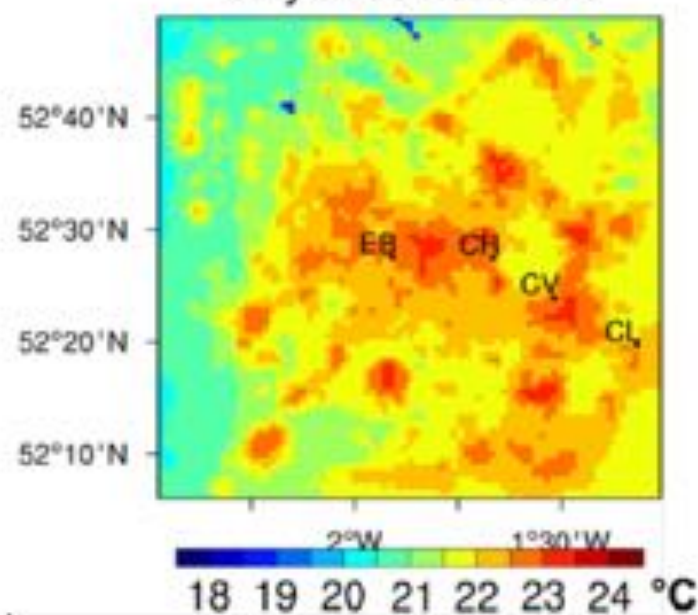
Sensitive locations
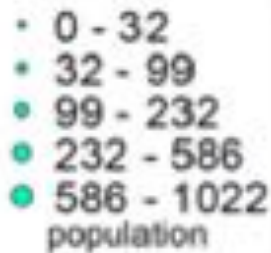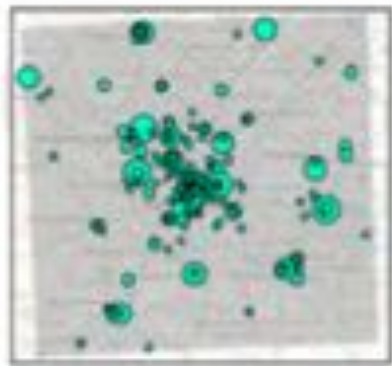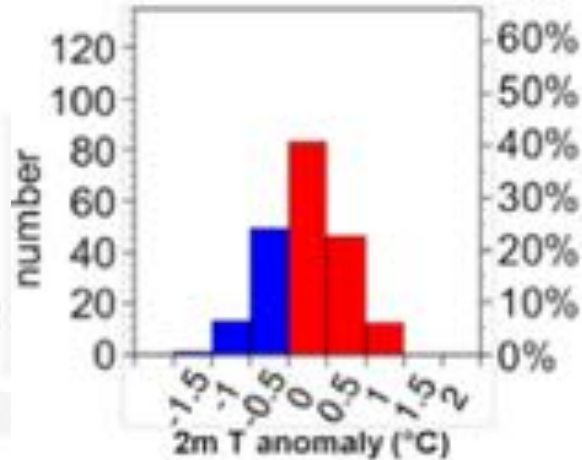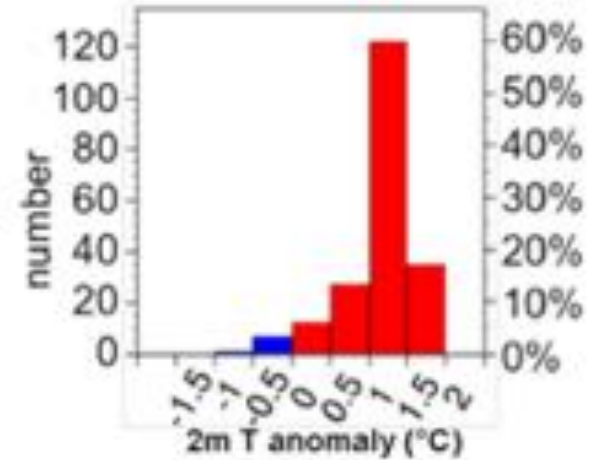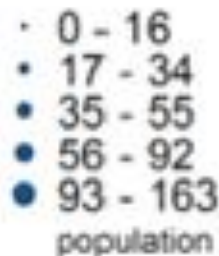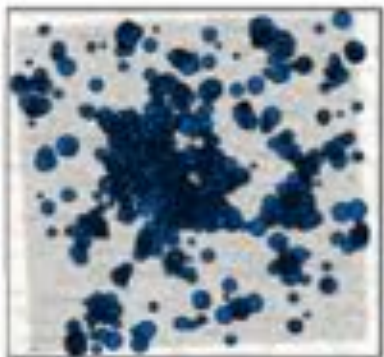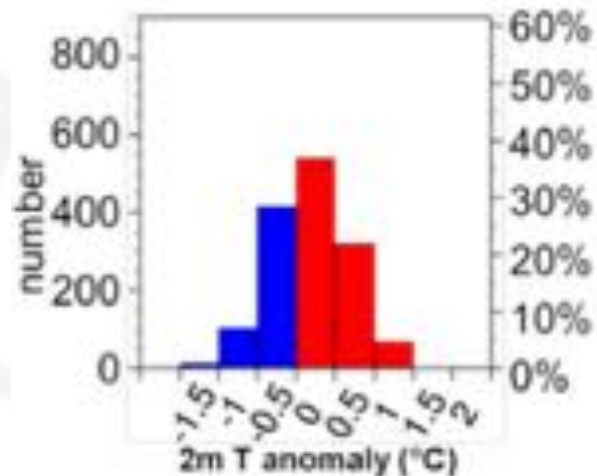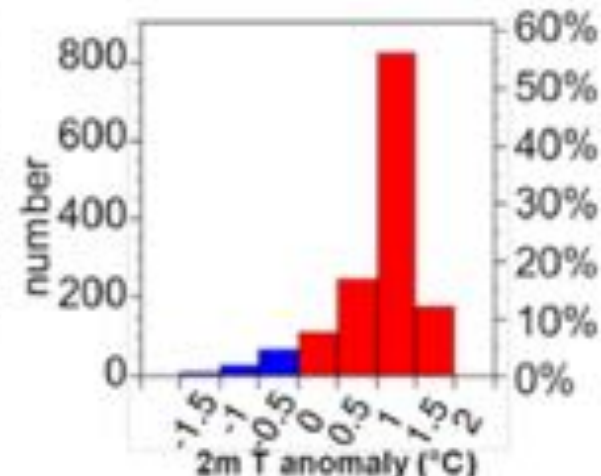
EURO-HEALTHY

Coordinator: Prof Paula Santana, University of Coimbra, Portugal; 14 Project Partners

- **Shaping EUROpean policies to promote HEALTH equity**
- **Main Objective**: To identify practices that have the highest potential to enhance **health** and **health equity** across European regions, with particular focus on metropolitan areas.
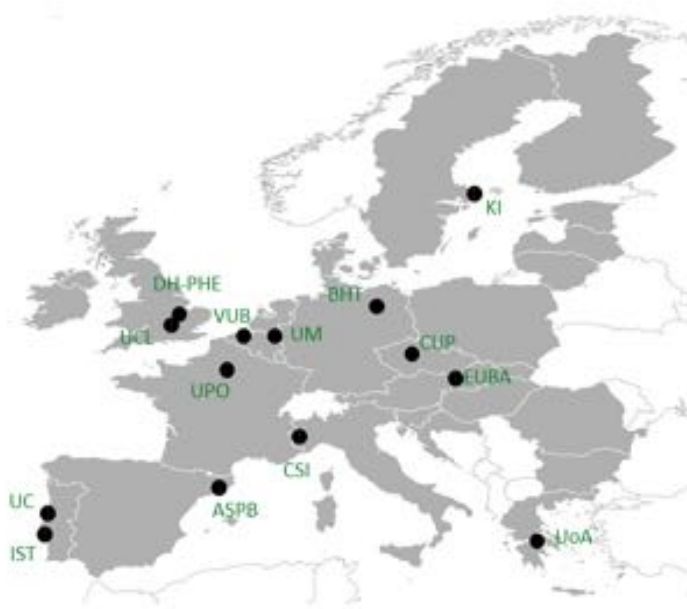
|	
UC	Universidade de Coimbra
ASPB	Agencia de Salut Publica de Barcelona
DH-PHE	Public Health England
UPO	Universite Paris Ouest Nanterre la Defance
IST	Instituto Superior Técnico
UM	Universiteit Maastricht
UCL	University College of London
KI	Karolinska Institutet
BHT	Beuth-Hochschule Fuer Technik Berlin
CUP	Univerzita Karlova V Praze
UoA	Ethniko Kai Kapodistriako Panepistimio Athinon
CSI	Consorzio Per il Sistema Informativo
EUBA	Ekonomicka Univerzita V Bratislave
VUB	Vrije Universiteit Brussel

Physical environment: Annual mean of PM$_{2.5}$

London

Stockholm

PM2.5 concentrations (ug/m3)

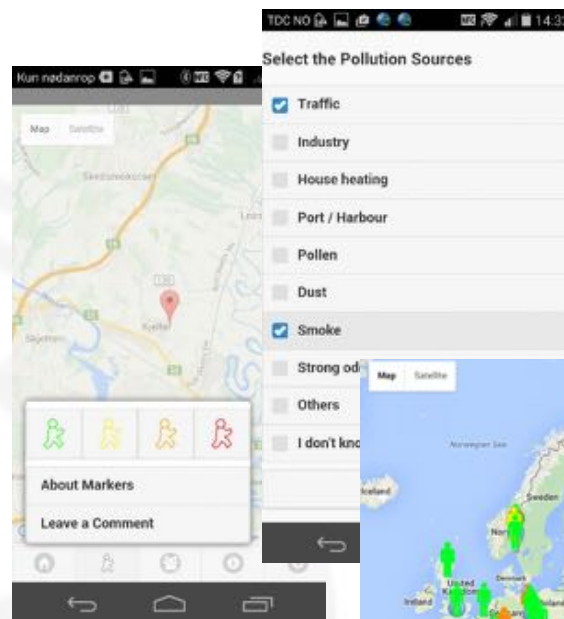|	
	0 – 5
	5 – 10
	10 – 15
	15 – 20
	20 – 25
	25 – 30
	30 – 35
	35 – 40
	40 – 45
	45 – 50
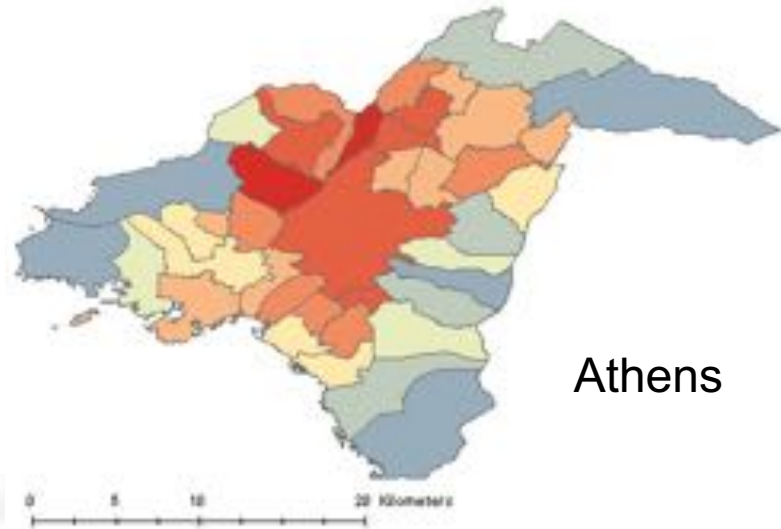
Source: Land Use Regression Model (SAHSU)

Athens

(Mitsakou et al. 2017)

Tell me and I will forget.
Show me and I will remember.
Involve me and I will understand.
Ancient Chinese proverb

http://co.citi-sense.eu

Air Pollution and Climate Change

- Need to be treated together
- **Win-win**: active travel, urban greening
- **Lose-win**: diesel cars, wood burning
- Maximise public health co-benefits of traffic interventions

Healthy-Polis International Consortium for Urban Environmental Health & Sustainability

- Promote research innovation: exposure assessment, environmental epidemiology, risk analysis, urban planning

- Facilitate international, multi-disciplinary research collaborations

- Provide training and promote capacity building especially in rapidly urbanising countries

- Evaluate and promote environmental interventions to improve public health in cities

Health

City
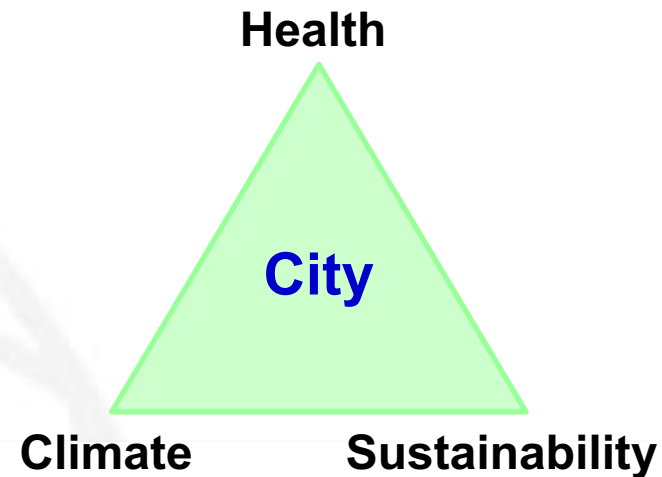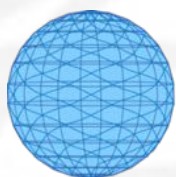
Climate   **Sustainability**

Healthy-Polis 2016
Challenges & Opportunities for Urban Environmental Health & Sustainability
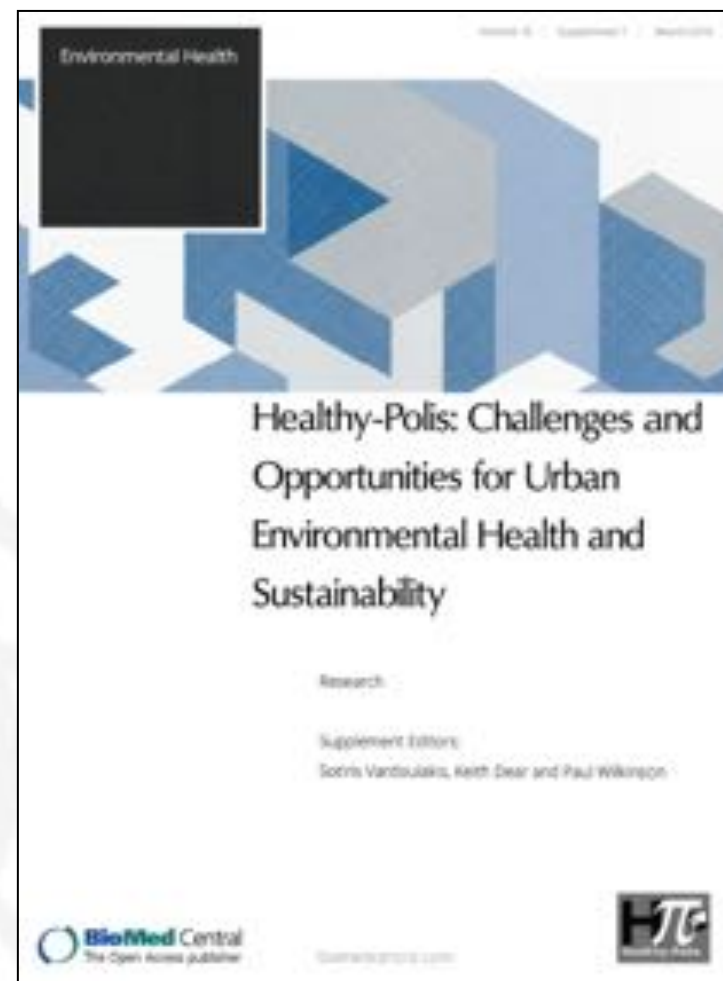*S. Vardoulakis, K. Dear, P. Wilkinson*

ENVIRONMENTAL HEALTH

Healthy-Polis 2017
Urban Climate, Air pollution, & Public Health
S. Vardoulakis, J. Salmond, C. Sabel

climate

Environmental Health

Healthy-Polis: Challenges and Opportunities for Urban Environmental Health and Sustainability

Research

Supplement Editors:
Sotiris Vardoulakis, Keith Dear and Paul Wilkinson

BioMed Central
The Open Access publisher

www.healthy-polis.org

blog network

ABOUT

On Health

Healthy-Polis: maximizing the benefits, minimizing the risks and improving policy for sustainable urban environments

In this blog, guest editor of a supplement published in *Environmental Health* talks about how the urban environment can influence our health.
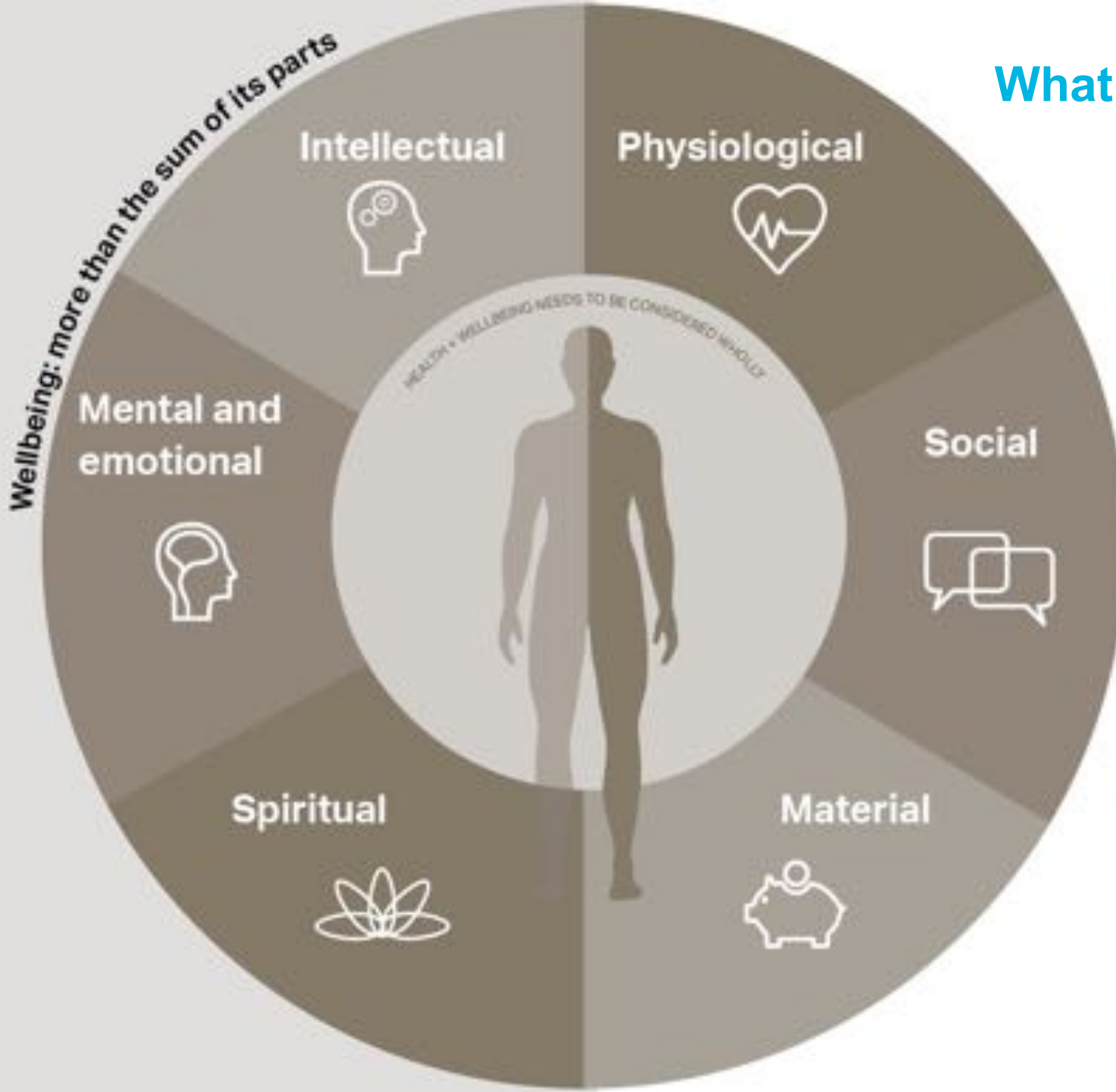
Sotiris Vardoulakis 9 Mar 2016

www.healthy-polis.org

Wellbeing in Buildings
Emily Loquidis, Principal Consultant

AECOM

We spend 90% of our time *Indoors.*

AECOM

What influences wellbeing?
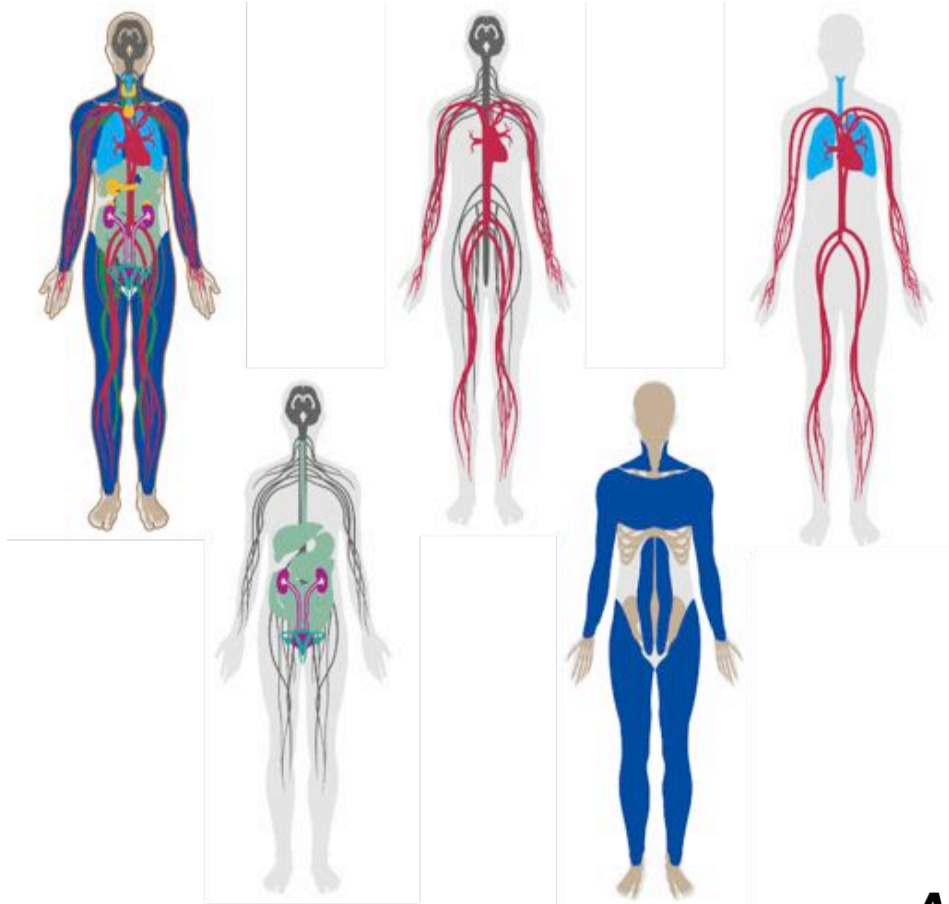
Wellbeing: more than the sum of its parts

Intellectual

Physiological

Mental and emotional

Social

Spiritual

Material

HEALTH + WELLBEING NEEDS TO BE CONSIDERED WHOLLY
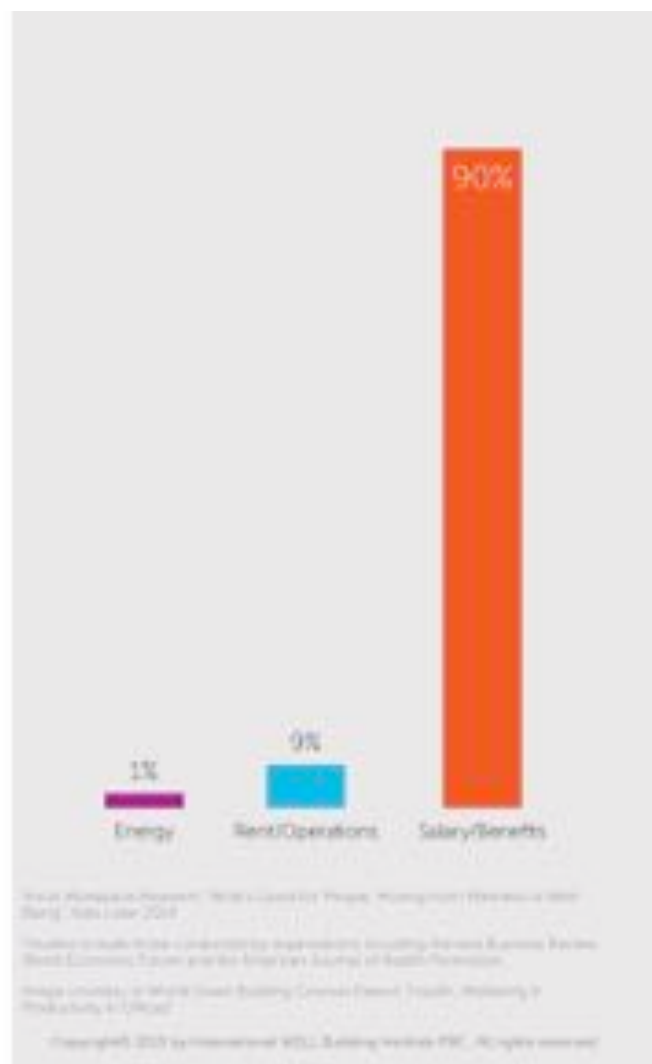
AECOM

Health and wellbeing

WELL GREEN

AECOM

Creating Fresh Air From Within

- 1950s: seal buildings to save money, trap and recycle the same air

- Sick building syndrome: respiratory infections, headaches, fatigue and decreased concentration

- Fresh air from within: large-scale green wall uses plants to clean inside air of carbon dioxide

- Expensive – make it a showpiece

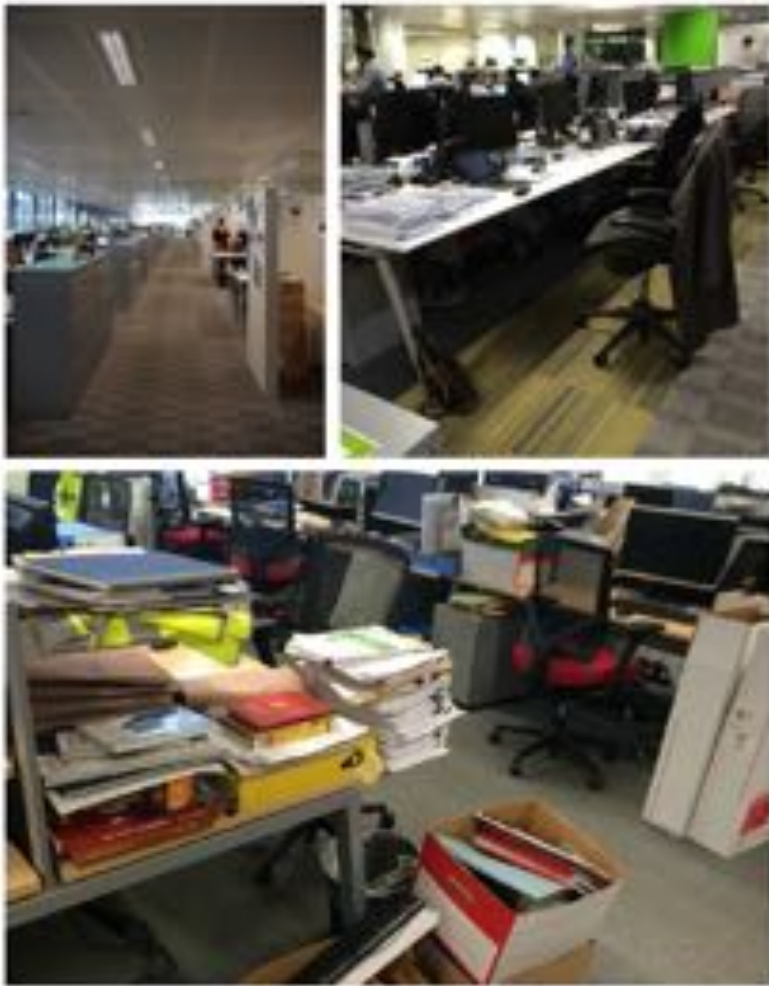Invest in *people* for return on investment.

CASE STUDY
Aldgate Tower

AECOM - Our Journey

MCP and Greencoat Place

FROM

TO

AECOM

Aldgate Tower

In Numbers

- Start **01.11.2015 – 16.09.2016** complete
- Construction period of **24 weeks**, completed in 18 weeks – **25% faster** than industry standard
- **728 desks** (25% sit stand), **69% average sharing ratio, 1,100 other spaces**
- **Staircase installed in 9 weeks**

Key Features

- **Hosted reception** welcoming and eliminating hierarchy
- AECOM **employee welcome & building user app**
- **Unified communications**, laptop/WiFi/no desk phones
- **Aldgate Tower occupied throughout** and with 4 other contractors also on site working on other floors
- **Efficient space occupancy** has saved OPEX and reduced carbon footprint

AECOM

CASE STUDY
Office Fit-out Victoria

AECOM

Fit-out Victoria

An office fit-out located in central London, the project is aiming for WELL Silver under New and Existing Interiors

Highlights:
- Low VOC Products and air quality
- Circadian Lighting Design
- Biophilia- natural finishes and
- sight lines rather than planting

AECOM

CASE STUDY
Bilaj, Bahrain

AECOM

Bilaj Bahrain

A 157 hectares (754,500m2) seafront and mixed-use tourism and recreational development with 3km of public beach

Project Highlights:
- Destination for Bahrani and Gulf Families – Catalyst for development in the Southern Region
- Pedestrian paths and bicycling paths, with integrated shading structures and a focus on thermal comfort
- Coastline stabilisation and remediation-protection from wind that prevents flooding
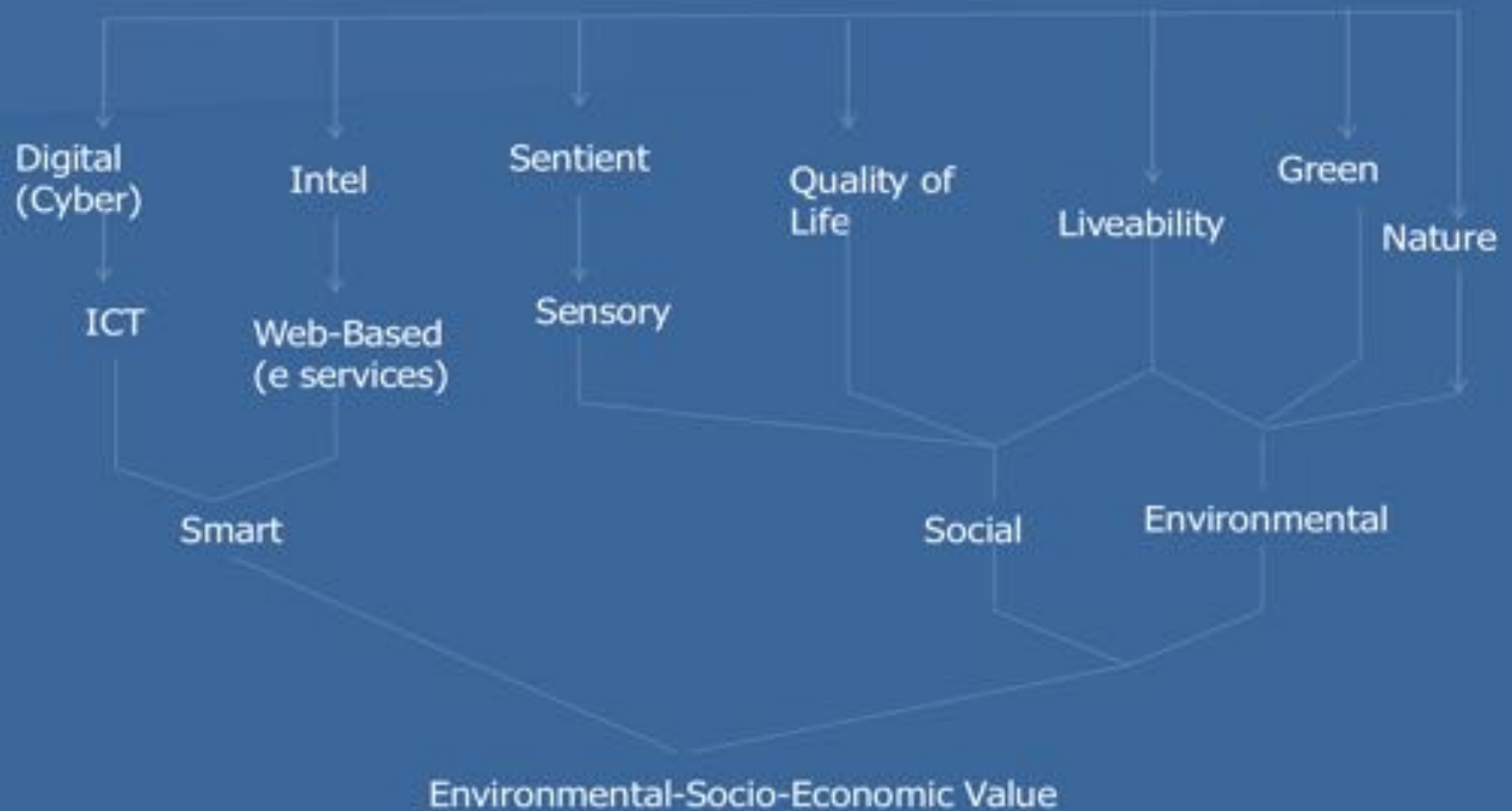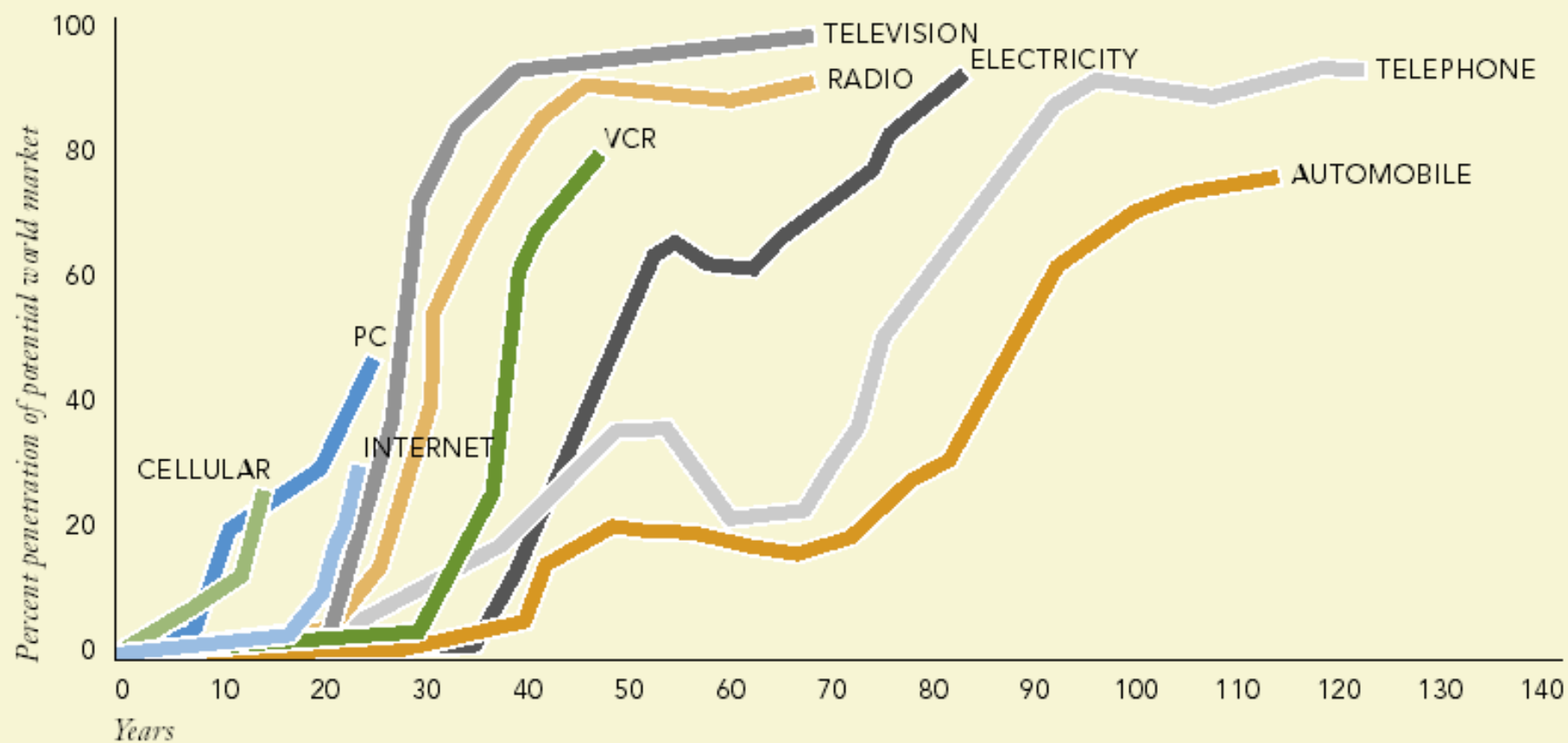- Xercic planting and biophilia

AECOM

Sustainable Intelligent Buildings and Cities

Digital (Cyber) → ICT → Smart

Intel → Web-Based (e services) → Smart

Sentient → Sensory

Quality of Life → Social

Liveability → Social

Green → Environmental

Nature → Environmental

Smart + Social + Environmental → Environmental-Socio-Economic Value

PACE OF INNOVATION ACCELERATING

Newer technologies taking hold at double or triple previous rates

SENSORY WORLD

**Motion
Heat flux
Temperature
Galvanic skin response
Heart rate/pressure
CO2 partial pressure
Blood O2 Saturation
Muscle tension
Respiration
Brain rhythms
Mood and stress**

Advantages

- Increased awareness of health and fitness.
- Learn how one's body and mind respond in various conditions.
- Online data connects with doctor so save appointment times
- Early diagnosis to help prevention better than cure
- Devices can be integrated clothing as well as wristbands and other accessories
- Weak spots in the office environment can be detected
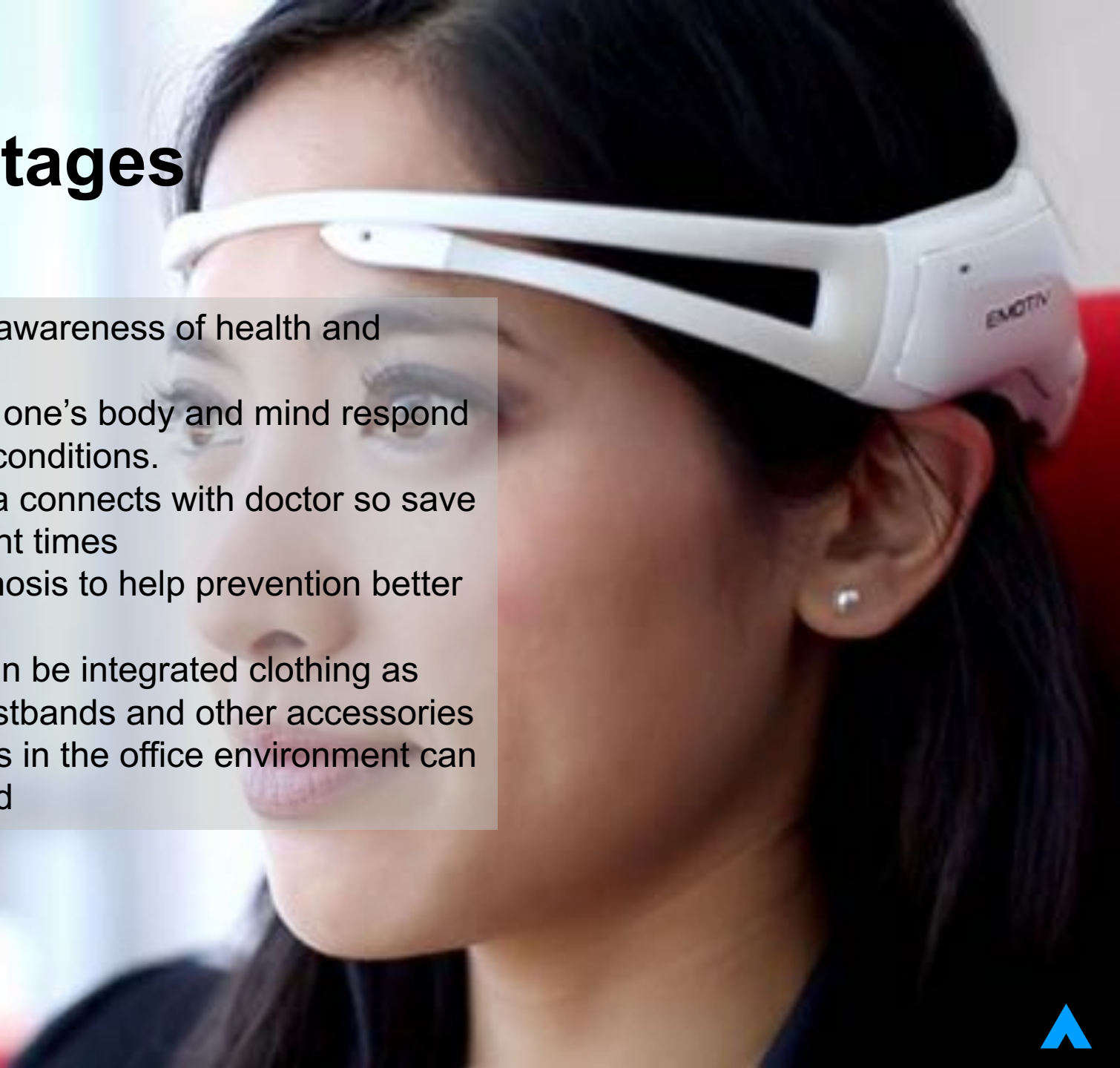
Disadvantages

- Privacy---see data sharing section
- More data and information so need big data analytic and synthetic solutions
- Market open to gimmicks
- Like computers and smart phones devices need regular updating
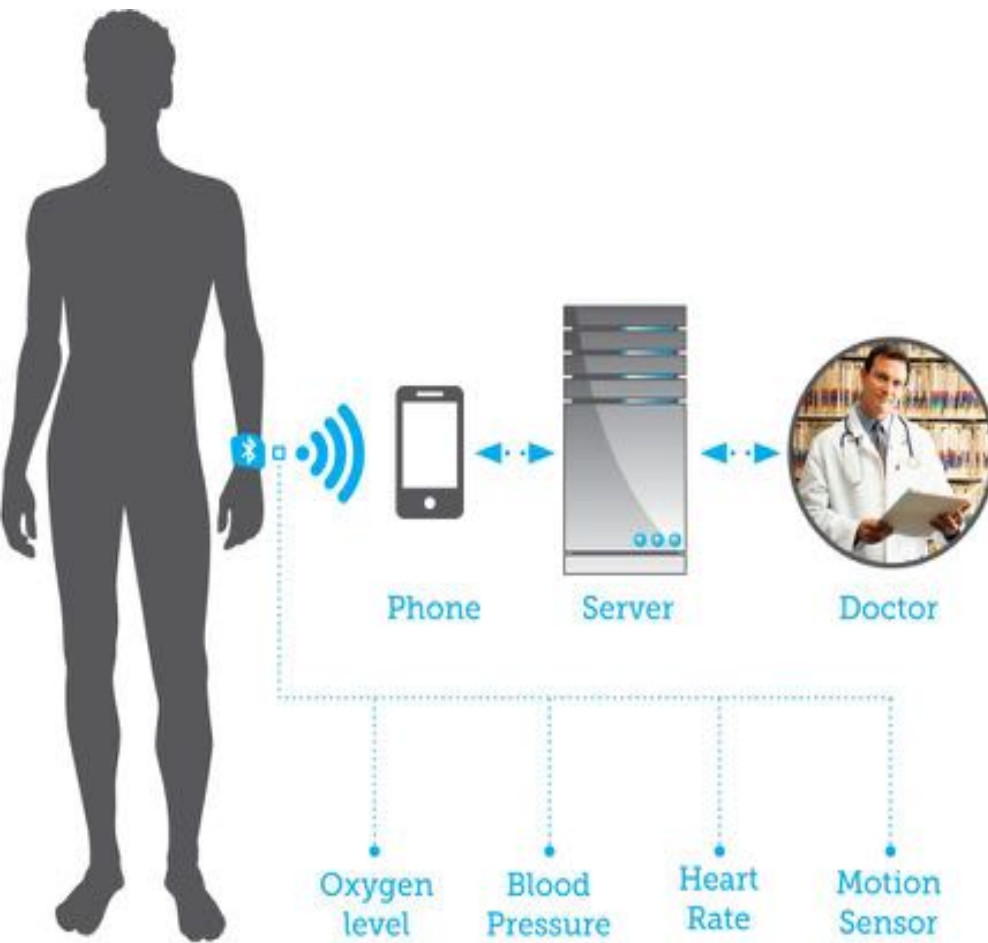
The future of wearable technology is not about the gadget on the wrist but what is done with the big data they collect.

[*Source*: Samuel Gibbs. "The future of wearable technology is not wearables – it's analysing the data" The Guardian, Jan 2015]

Edge Building by Deloitte

Edge Building by Deloitte

- 28,000 sensors
- Edge mobile App
- Sitting, standing, meeting, concentration spaces
- BREEAM 98.4%
- Workspaces < 7 m from window
- Natural ventilation via atrium
- Interactive walls
- Personal data not shared
- Electric parking
- Aquifer water storage for radiant heating-cooling
- Solar panels on South face

Cybertecture Egg-Shaped Building
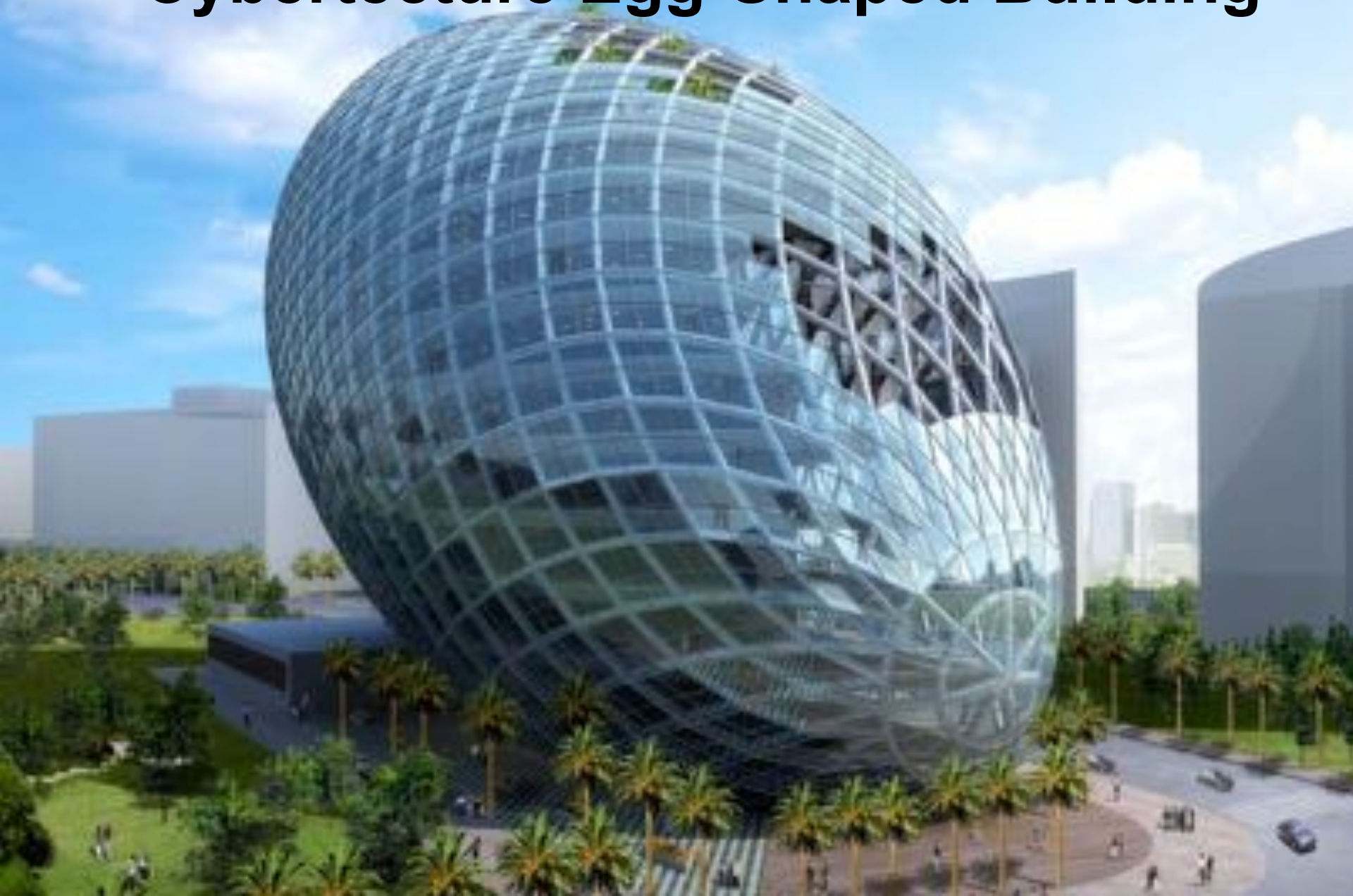
Cybertecture Egg-Shaped Building

Sky Gardens

- Structure used to protect the building, by enabling
- Sun shading and providing a refreshing atmosphere to the building.
- Use of solar PV and wind turbine system at the rooftop

Indoor comfort

- "Best space to work in" J.L. Cybertecture

Interactive features

- Presents people's health statistics such as blood pressure and weight

Green Mega City: Lilypads by Vincent Callebaut

Green Mega City: Lilypads

- Titanium Dioxide skin to absorb CO2
- 2 seater electric pod cars
- Biodiesel/electric buses guided by embedded road magnets
- Footstep energy
- Wind turbines using air movement
- Hydrogen from an Algae Park
- Tidal power from wind from passing car
- Solar energy from paint containing solar nanoparticles