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# The Health Futures Project

Key developments affecting the future of health in Europe 2017-2037

*Information for Scenario Generation Workshop)*

realisation collaborative

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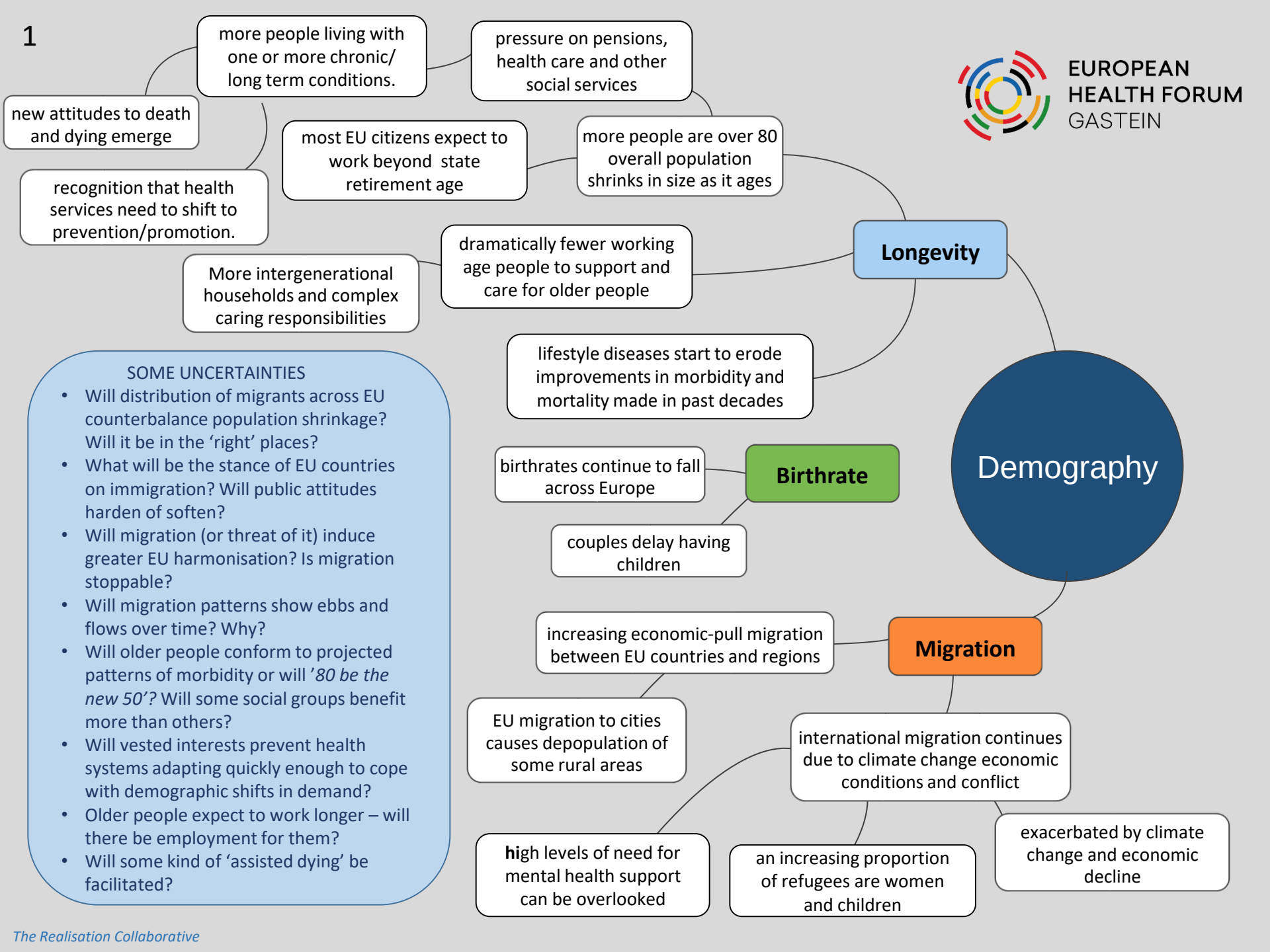


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SOME UNCERTAINTIES

- Will distribution of migrants across EU counterbalance population shrinkage? Will it be in the 'right' places?
- What will be the stance of EU countries on immigration? Will public attitudes harden of soften?
- Will migration (or threat of it) induce greater EU harmonisation? Is migration stoppable?
- Will migration patterns show ebbs and flows over time? Why?
- Will older people conform to projected patterns of morbidity or will *'80 be the new 50'?* Will some social groups benefit more than others?
- Will vested interests prevent health systems adapting quickly enough to cope with demographic shifts in demand?
- Older people expect to work longer – will there be employment for them?
- Will some kind of 'assisted dying' be facilitated?

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# The Environment

## Climate Change

- deaths due to heat = elderly and v. young most affected
- increased deaths from flooding due to rising sea levels and heat
- Global warming continues even if carbon emissions controlled - pace will slow
- indirect effects will be felt in increasing food and water scarcity
- ticks, food related infections and tropical diseases become more prevalent
- extreme weather events increase in frequency
- EU disease control measures patchy

## Energy and Raw Materials

- micro generation, diverse sources of green energy storage and transmission become increasingly important and available
- costs and envonmental concerns stimulate and growth of interest in recycling and innovative design of 'green' products
- energy efficiency higher priority – but potential short term outage despite tech.solutions
- raw materials like phosophorus and rare earth metals become increasingly scarce

## Air Quality

- air pollution levels fall slightly but continuing problem for respiratory health
- influences attractiveness of cities for work and homes
- legal challenges to air pollution trigger major shifts in policy toward pollution controls & transport

SOME UNCERTAINTIES

- How might the effects of climate change on human health be distributed across the EU?
- Will there be greater recognition of the links between planetary and human health? If so what are the triggers?
- Will there be sufficient public concern about the environment to lead to timely mitigating action?
- Will there be improvements to community resilience to environmental changes and the impacts on health? If so how?

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# Employment and work

## Impact of technology

robotics, automation and big data replace jobs in wide range of sectors – including agriculture, law, finance and administration and industrial processes

- human skills like empathy, listening, prioritization, communication will be more valued
- stimulates new job types
- areas of key skill gaps as well as high levels of unemployment and underemployment
  - consequences for mental ill health
- rapid pace of technological change means need for ongoing training and skills development through working life
- enables greater worker mobility but also more surveillance

## Work patterns

more flexible, part time work and frequent changes of jobs/career – and fewer people in traditional full time employment

- meaning of a 'job' is rethought solutions like 'guaranteed basic income' or 'shared security accounts' may become mainstream
- growth of contingent labour – work with low pay, no protection or social security benefits
- businesses and workplaces may not be well adapted to responding to the different needs and expectations of the 'new' diverse workforce

## Diversity of Workers

Increasing mix of generations, ethnicity, gender and values in workplaces

- with different expectations about work and life

SOME UNCERTAINTIES

- How will demographic trends fit with changes in work and employment e.g. jobs for older people and labour to care for them?
- What will societies with less work, more automation and 'contingent labour' look like – how do we prepare? people?
- What will be the impact on mental health?
- How will shifts in employment opportunities affect patterns of migration?
- Will mismatch between education and skills required by business continue?
- Do the 'new' jobs eventually plug the gap left by the old?

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# Economy

## Economic Trends

- 'economic growth' gradually becoming replaced by 'wellbeing' as measure of economic performance
- EU challenged by 'emerged' economies (especially China) who own infrastructure manufacturing and food assets.
- low economic growth for EU forseeable but wide variations within - north & west vs south & east
- economic benefits of having a healthy population become indisputable
- continuing rise in costs of welfare services, especially health - driven by demography, public expectations and 'reach' of medical technology
- some European countries could be better positioned than others to support/exploit this
- AI, robotisation, 3D printing, infotech, driverless vehicles cause rapid shift in nature of industrial and service sectors

## Social Consequences

- **t**he 'circular economy' emerges in response to shortage of raw materials, protecting environment and reducing costs
- exponentially widening 'wealth gap' (assets and income) within and across EU countries and globally
- if not addressed, the widening gap will trigger dissent and migration
- 'guaranteed minimum income' policies adopted in some EU states after learning from multiple pilots
- for some, benefits of underemployment realised – more leisure/learning time, resurgence of community and family life, fall in stress related illness

SOME UNCERTAINTIES

- How will EU respond to stronger global economies?
- Will economic trends limit EU work on health policy?
- Will a transition from pursuit of 'growth' to 'welfare' happen? If so how will it be managed in practice?
- Would it have to be EU wide?
- Will pressure on welfare lead to more austerity or will other solutions be found?
- Will there emerge national/EU controls on wealth and income differentials for individuals/regions?
- Would a shift to a 'Circular Economy' require a consistent 'policy push' or will it happen incrementally?
- Will the public realise the benefits of reduced employment? Will they care more about health and wellbeing than a well paid job?

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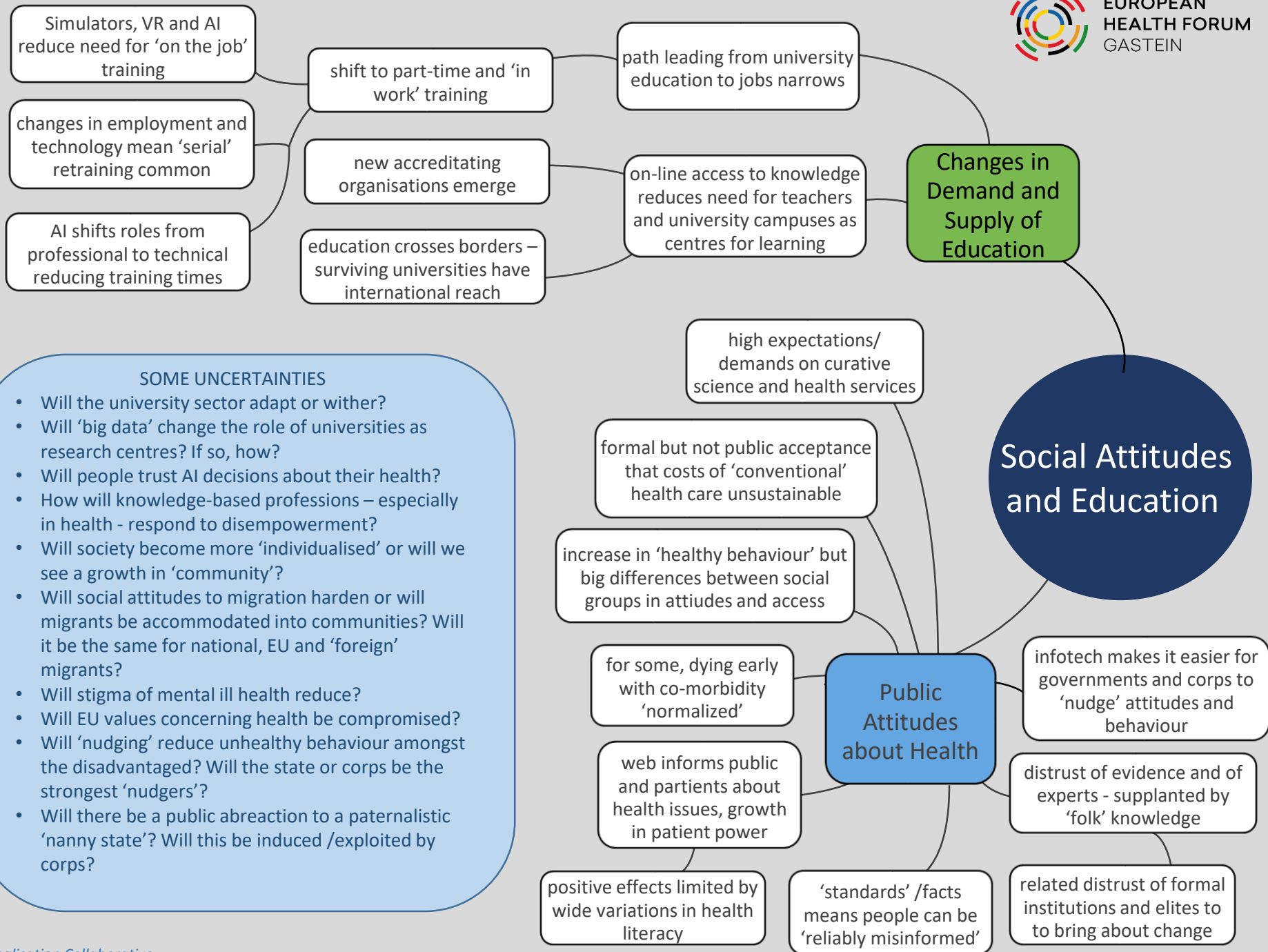


SOME UNCERTAINTIES

- Will the university sector adapt or wither?
- Will 'big data' change the role of universities as research centres? If so, how?
- Will people trust AI decisions about their health?
- How will knowledge-based professions – especially in health - respond to disempowerment?
- Will society become more 'individualised' or will we see a growth in 'community'?
- Will social attitudes to migration harden or will migrants be accommodated into communities? Will it be the same for national, EU and 'foreign' migrants?
- Will stigma of mental ill health reduce?
- Will EU values concerning health be compromised?
- Will 'nudging' reduce unhealthy behaviour amongst the disadvantaged? Will the state or corps be the strongest 'nudgers'?
- Will there be a public abreaction to a paternalistic 'nanny state'? Will this be induced /exploited by corps?

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# Politics and Civil Society

## Relationships: EU Members

conflicting pressures influencing place on continuum between 'unity and independence'

- greater harmonisation?
  - driven by trans-border safety/security issues like epidemics, terrororism
  - but EU reluctance to address public health issues
- more bi- or multi-lateralsim?
  - driven by mutually benficial deals in trade, research, corp regulation, security and service delivery,
- more indepent action?
  - driven by nationalistic political sentiment and particular economic interests

## Relationships: People and Politicians

- growth of'people power' – public more able to set political agenda
  - state responds by shifting from *monitoring* public opinion to using new media to *actively* influence it
- old party structures replaced by a more 'diverse' political landscape
- rise in relative inequalities induces 'politics of envy'
  - growing civil unrest - social order threatened in some places

## Relationships: Health and Wider Economy

- State interest in 'health in all policies' grows as instrument of social cohesion
- big corps take interest in delivering 'health and wellbeing'
- emerging scepticism and potential challenge to large corps' investment in care and treatment

SOME UNCERTAINTIES

- Will regions collaborate across national borders within EU rules?
- Will the poor and weak be repressed and side-lined or is there a paradigm shift amongst politicians – so the poor and weak are 'accommodated'?
- Is the shift pragmatic or altruistic – does it matter?
- Will it take a crisis to prompt this shift? If so what?
- Given the speed and unpredictability of shifting political fortunes, where will power and influence over civil society reside?
- How will public participation in mainstream democratic processes change? Will there be alternatives?

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# Built environment and transport

'smart' cities emerge where energy, transport and climate are sustainably managed

more attention directed to shape and functioning of cities as impacts of climate change more apparent

rising sea levels threaten many European cities

current trend continues - by 2050 over 75% of Europeans live in the city

**Urbanisation**

urban 'fringes' of cities sprawl with implications for services, health and environment

awareness of relative deprivation increases mental ill health and potential for social unrest

increasing social segregation – concentrations of diverse poor in remote city suburbs with limited access to jobs/ amenities

availablity of affordable homes/ social housing fails to match demand in cities

large numbers of 18-30 year olds have to live with parents for longer

over time new technologies reduce costs and time of building sustainable houses dramtically

**Housing**

But driverless car systems commonplace

investment in transport infrastructure continues to lag behind demand

progressively stronger incentives to reduce use of polluting private cars and trucks.

**Transport**

'hyperloop' trains emerge to offer faster cleaner inter-urban travel

'clean' mass transit sytems commonplace

demand for inter-urban and suburban transportation increases

SOME UNCERTAINTIES

- What will trigger cities to contemplate adoption of healthier environments?
- Can older city centres be adapted? If not, will they be abandoned?
- Can the suburbs also be 'greened?
- Will there be demonstrable health benefits of 'smart' cities?
- Will financial and planning institutions be nimble enough to adopt new cheap and sustainable house building technologies?
- Will we see pollution-push depopulating big cities?
- Will regulation/technology clean up cities fast enough to prevent this?
- Could pollution and unemployment make city life unattractive enough to result in rural repopulation?
- Will new technology mean people won't travel to congregate in work places?

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# Med. Tech. and Pharma

## genome sequencing and gene therapy

- biotech developments offer 'cures' for such things as common cancers, Alzheimer's and autism
- proliferation of personalised treatments matching individual and disease genetic profiles

## telemedicine, telecare and robotics

- triggers potential shift in balance of power between clinicians and patients
- enables more care at home and more citizen responsibility for health
- initially surgical and social applications but more likely to augment rather than replace clinical and caring workforce

## diagnostics and devices

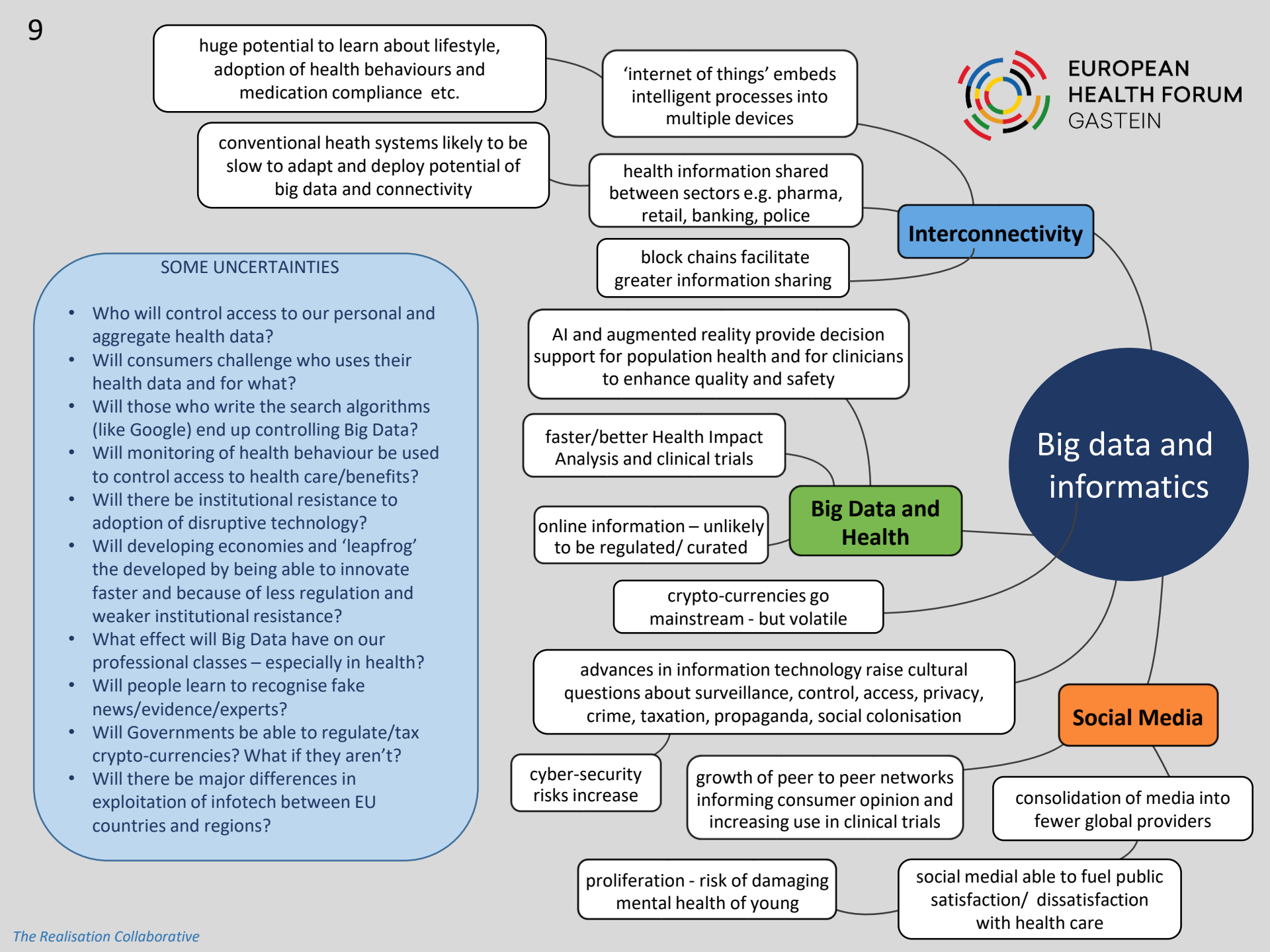
- kit becomes digitized and mobile so can be operated by individual citizens or 'assitants'
- neural implants offer potential to enhance brain function

## medicines and their production

- antimicrobial resistance (bacterial,fungal,viral) accelerates - unreliable pipeline of effective alternatives
- 3d printing allows personalized medicines printed to order on single tablet
- 'organs' on chips enable faster and maybe cheaper development of drugs and toxisity assessments
- pipeline more opaque as multitude of smaller providers engage in product research – especaily in Asia
- counterfeits - some exact copies -available on the net
- potential for improved medication compliance but also implications for regulation of compounds which can be accessed over the internet
- common surgical procedures become more risky, impractical or costly
- threat to Big Pharma's IP

SOME UNCERTAINTIES

- Will uptake of new med tech developments across the EU remain patchy? Will potential for efficiency in procurement be realised?
- Will governments decide to give stronger market signals about what they want (and will pay for) or will supply continue to be industry led?
- Will health care systems continue to pursue med. tech. cures or will they shift focus to prevention and to health?
- Could biotech shift from 'treating' small symptomatic populations to focussing on improving public health?
- Will expense of new technologies widen health inequalities between rich and poor people/states? Will new biotech mean more or less expensive health care?
- Will ethical, regulatory and professional constraints slow or halt uptake?
- Will safe 'lifestyle' drugs be developed /available for things like happiness, obesity and memory?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huge potential to learn about lifestyle, adoption of health behaviours and medication compliance etc.
'internet of things' embeds intelligent processes into multiple devices
conventional heath systems likely to be slow to adapt and deploy potential of big data and connectivity
health information shared between sectors e.g. pharma, retail, banking, police
Interconnectivity
block chains facilitate greater information sharing
SOME UNCERTAINTIES
Who will control access to our personal and aggregate health data?
Will consumers challenge who uses their health data and for what?
Will those who write the search algorithms (like Google) end up controlling Big Data?
Will monitoring of health behaviour be used to control access to health care/benefits?
Will there be institutional resistance to adoption of disruptive technology?
Will developing economies and 'leapfrog' the developed by being able to innovate faster and because of less regulation and weaker institutional resistance?
What effect will Big Data have on our professional classes – especially in health?
Will people learn to recognise fake news/evidence/experts?
Will Governments be able to regulate/tax crypto-currencies? What if they aren't?
Will there be major differences in exploitation of infotech between EU countries and regions?
AI and augmented reality provide decision support for population health and for clinicians to enhance quality and safety
faster/better Health Impact Analysis and clinical trials
Big Data and Health
online information – unlikely to be regulated/ curated
Big data and informatics
crypto-currencies go mainstream - but volatile
advances in information technology raise cultural questions about surveillance, control, access, privacy, crime, taxation, propaganda, social colonisation
Social Media
cyber-security risks increase
growth of peer to peer networks informing consumer opinion and increasing use in clinical trials
consolidation of media into fewer global providers
proliferation - risk of damaging mental health of young
social medial able to fuel public satisfaction/ dissatisfaction with health care

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pharma finds 'safe' obesity drugs

increasingly likely to be characteristic of the poor

obesity increasing threat to human health

no 'gold standard'

contradictory nutritional advice confuses public

sections of public hyper-conscious about health implications of diet

food 'enriched' with pharmaceuticals - the new 'healthy eating'

more meals prepared/ eaten outside home in non-social settings

controls/regulation difficult due to ease of production and internet drug market

alternative forms of protein found (insect/bacterial/funghal/ synthetic

public lead politicians over unsustainability of meat production

**Food Consumption**

consumption grows and range of drugs expands

big challenges for EU food policy *productionist vs ecological*

'Recreational' Drugs

globalisation makes supply chains complex and difficult to regulate

climate change threatens patterns of supply

**Food Supply**

shortages (even temporary) prompts panic buying, fear and racketeering

Food

differences in faith/culture make adoption of healthy behaviours challenging for some groups

**Beliefs and Behaviours**

**in some parts of EU, dealing with water shortages will precede any problems with food!**

health insurers incentivise healthy lifestyles - and monitors!

increasing interest in fitness and health in some social groups - could widen inequalities

SOME UNCERTAINTIES

- Will there be a shift in EU policy about food production? What could we expect?
- Will unhealthy eating behaviour be stigmatised or normalised – will it be the same for all groups?
- Will novel food sources be acceptable and sufficiently available?
- Will governments be able to regulate EU and global food producers and manufacturers?
- What will be the effect of manufactured food on rural areas?
- Will there be a paradigm shift in attitudes to personal responsibility for eating healthily? And sustainably? What will trigger it?
- Will all EU governments legalise recreational drugs?
- Will there be collective EU action to deal with water shortages?