



Global Trends, Challenges & Opportunities

National STI Foresight for South Africa

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Moscow**

Global Trends



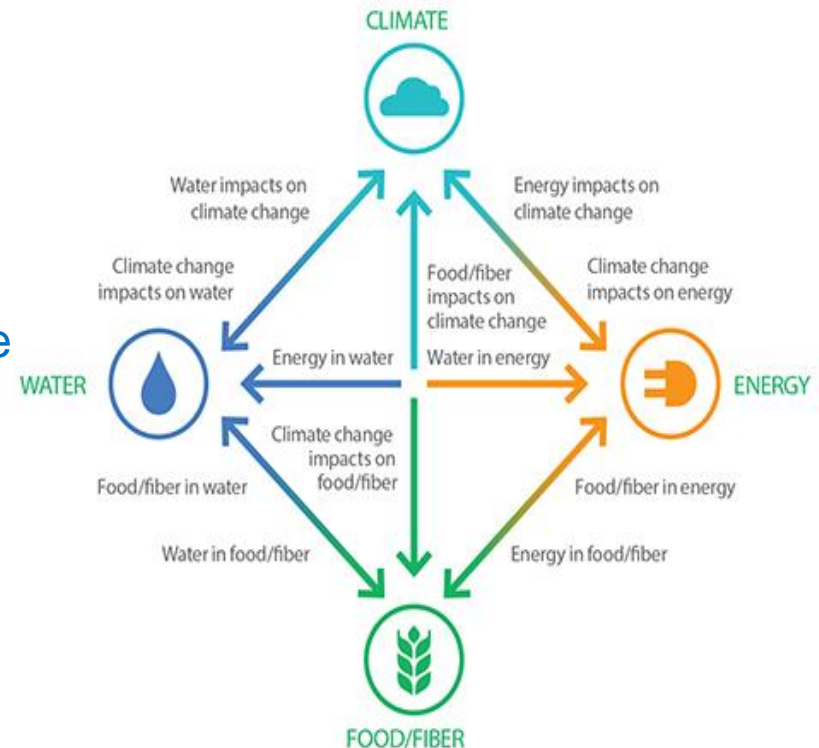
Growing up: global demand for products and services

Getting scarce: water, food, energy, natural resources

Gaining value: scarce resources become more costly as they are finite and shared

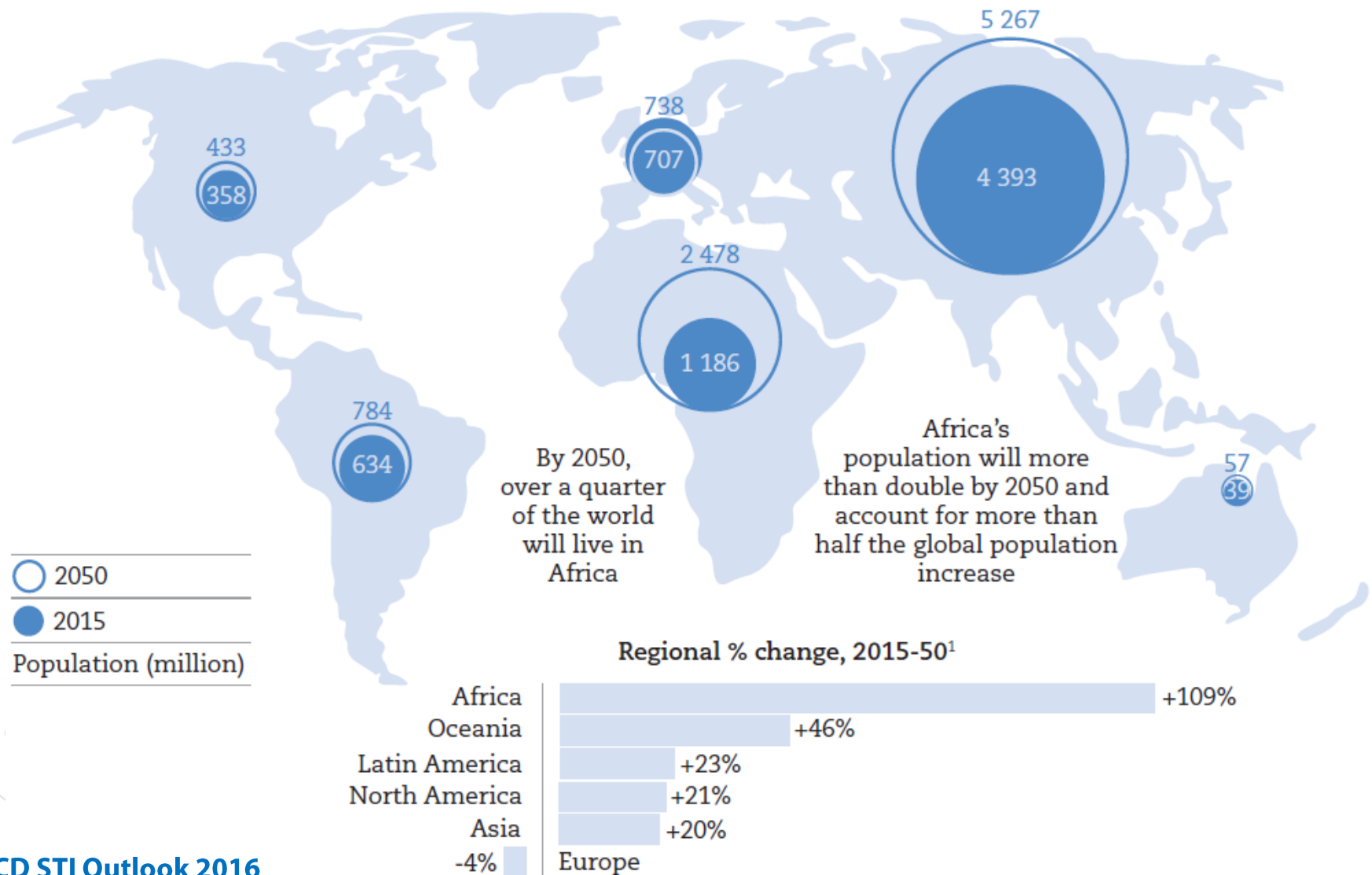
Giving rise to: sustainability and security concerns problems with potential social, economic and political conflicts

Going technological: Advancements in STI and increasing public and private R&D are providing opportunities for addressing global challenges



Demographic change

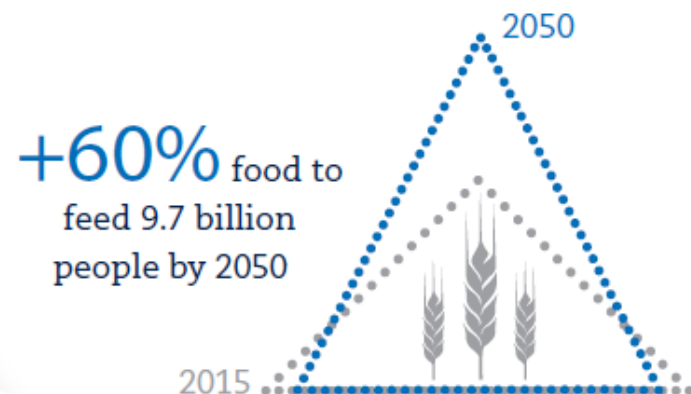
From 7.4 billion in 2015, the global population will reach 8.5 billion by 2030 and 9.7 billion by 2050



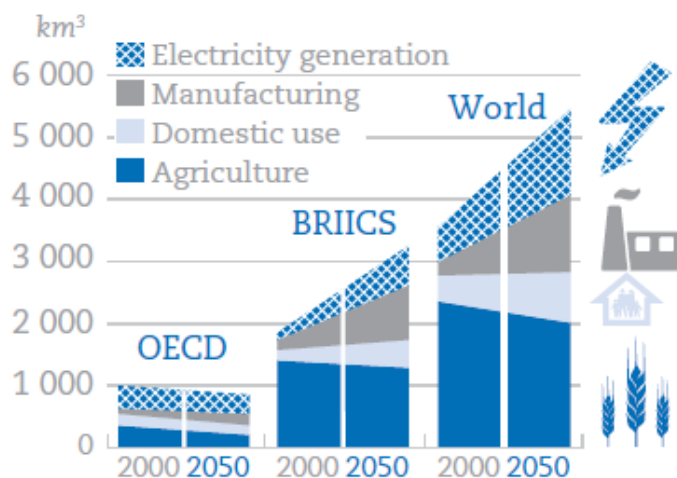
Use of water-food-land resources



52% of agricultural land is already affected by moderate to severe degradation

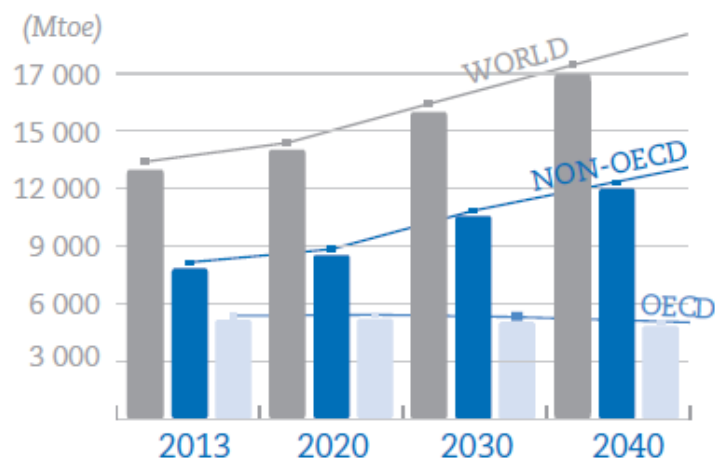


+55% water demand by 2050

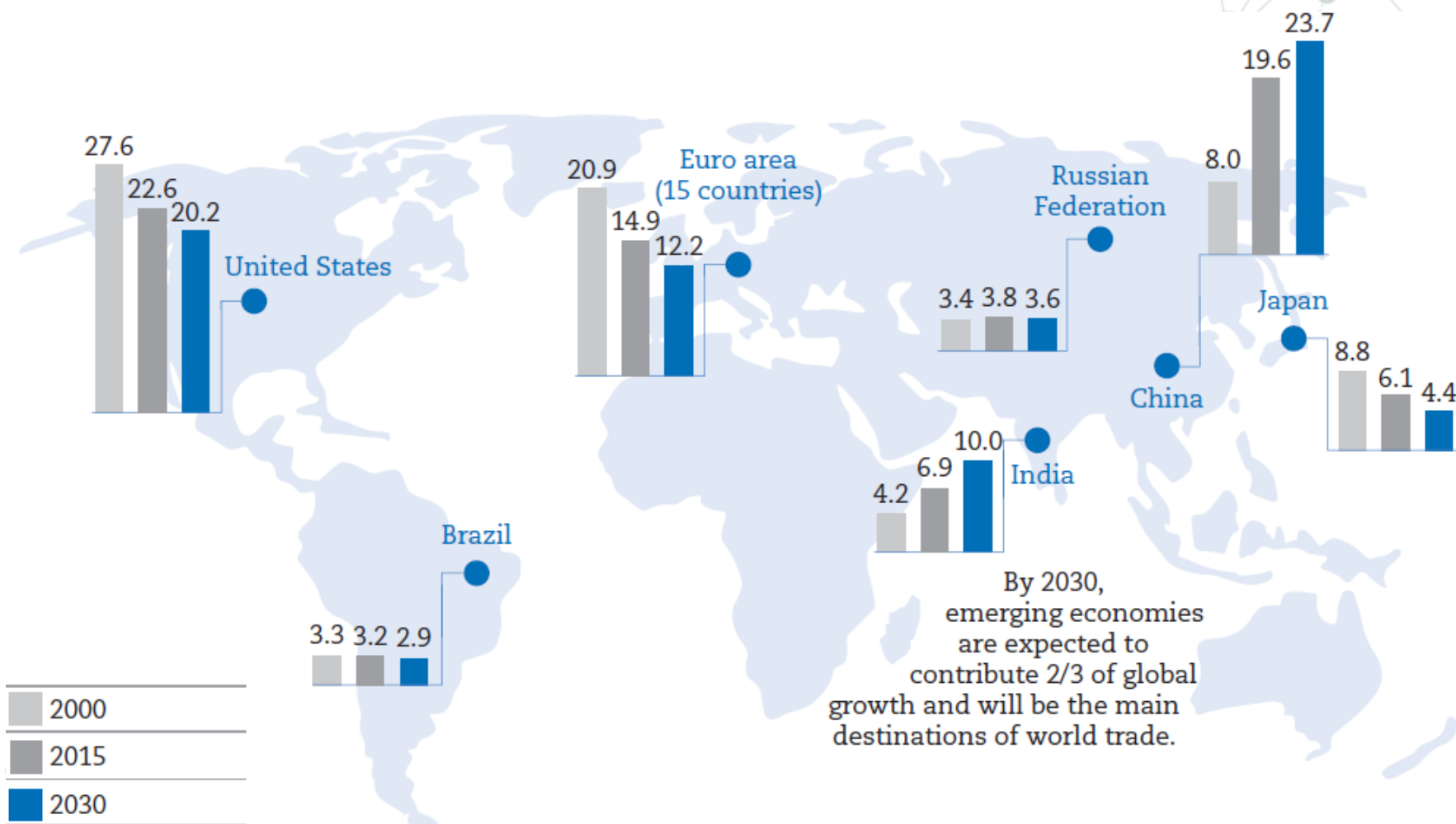


Economic growth in non-OECD will drive further increases in global energy consumption. Asia will account for around 60% of the total increase

+37% increase in global energy demand by 2040



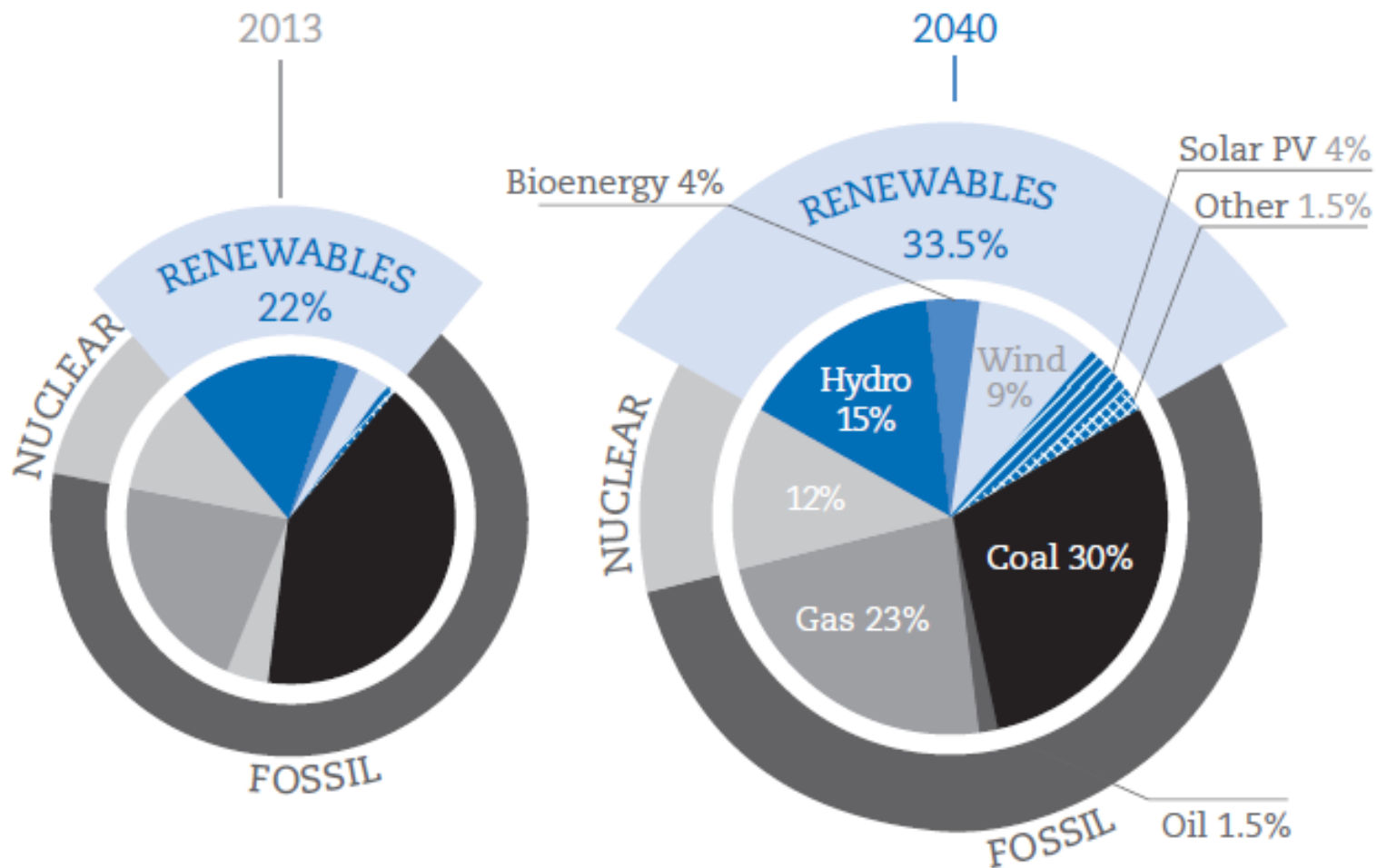
Shift of the gravity of world economy



Percentage of world GDP, 2005 USD: 2000, 2015 and 2030

Progress towards renewables

Energy supply mix (% of electricity generation)



Social change

More urbanised
% of the world population living in urban areas⁴



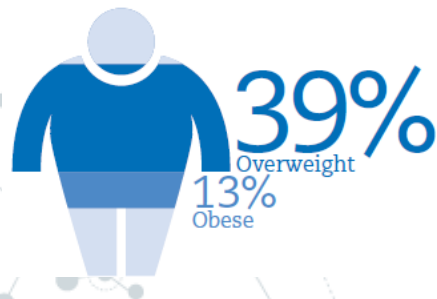
More educated⁶
The number of students enrolled in higher education **will double** globally by 2025 to 260 million.



Obesity on the rise⁶

Adult obesity, 2014

Child obesity, 2014



41 million children under the age of 5 were overweight or obese in 2014.



Rise in annual supply of industrial robots
Thousand⁴



2018 | 400



2014 | 230



2002 | 70

An explosion in the number of things connected
Billion⁵



2050 | >100



2020 | 30



2014 | 10

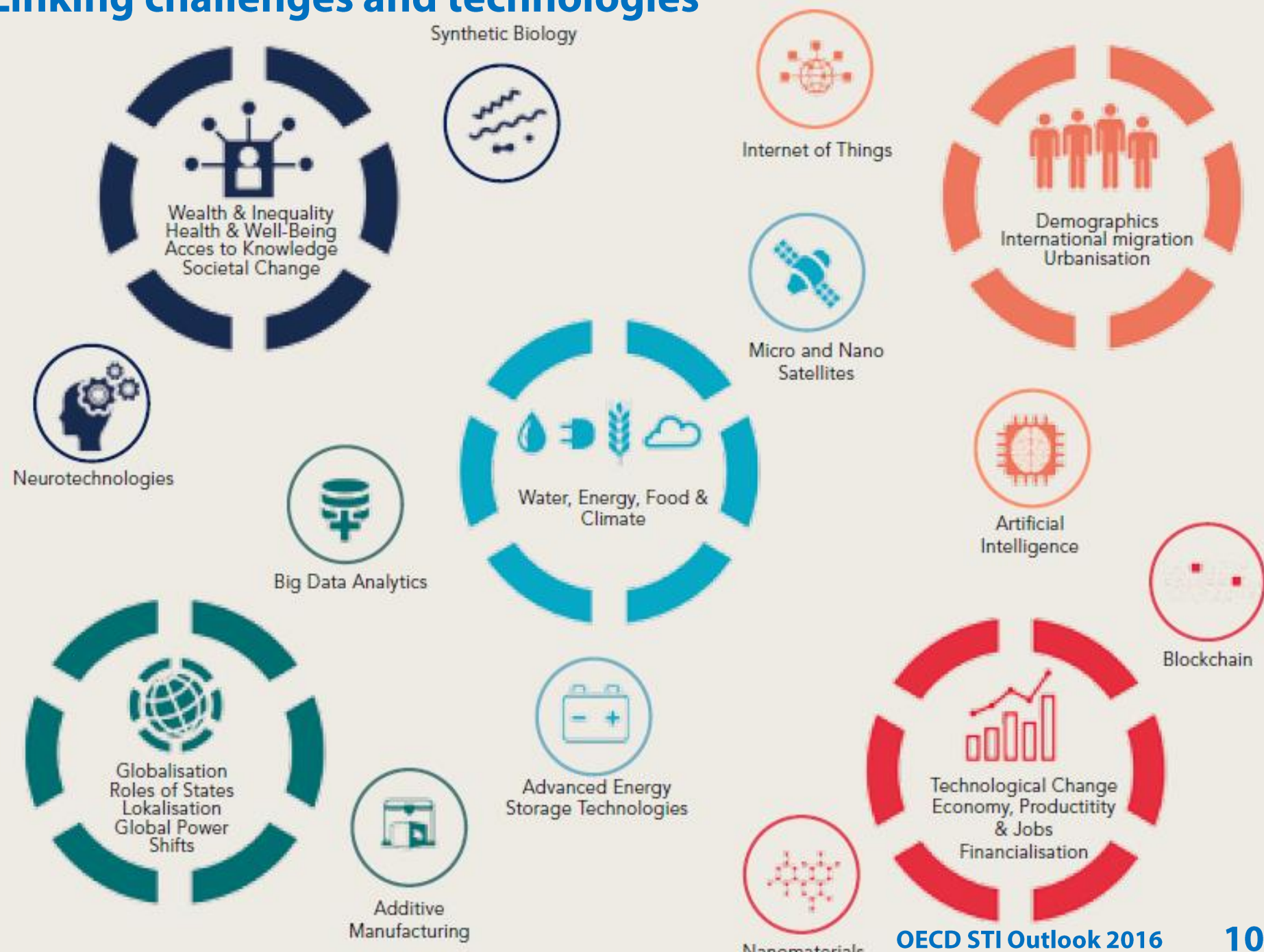
Global Risks (WEF): Unique & common challenges



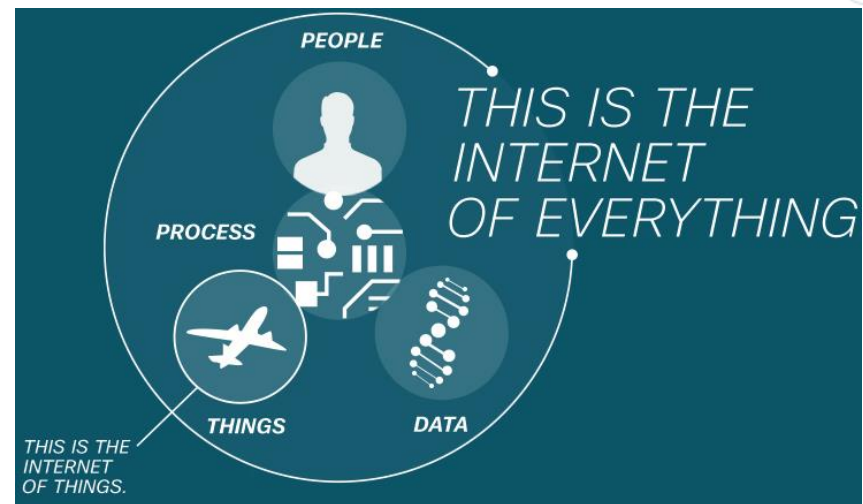
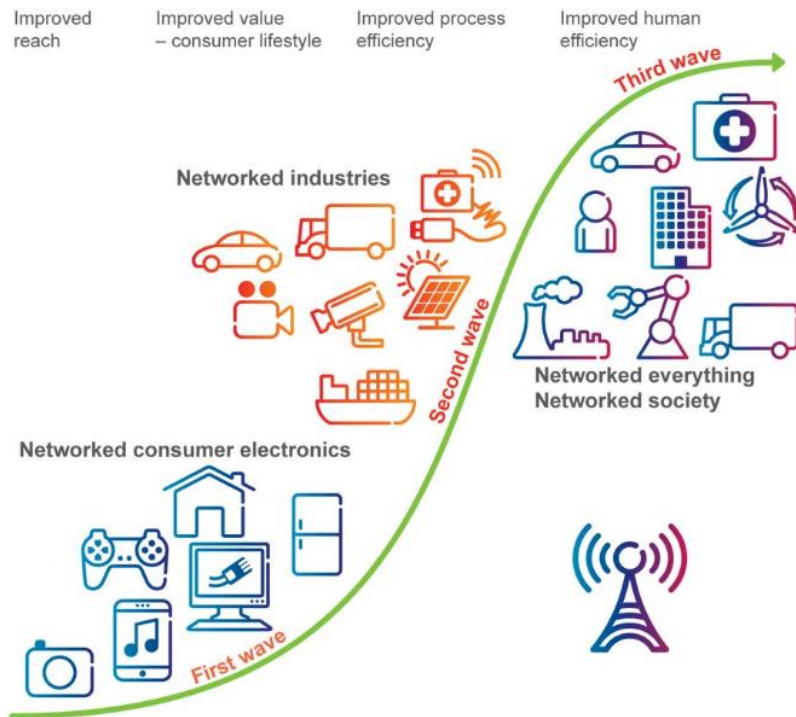
A set of ambitious goals: Need for systems thinking



Linking challenges and technologies



The 4th Industrial Revolution & Human x Technology Convergence



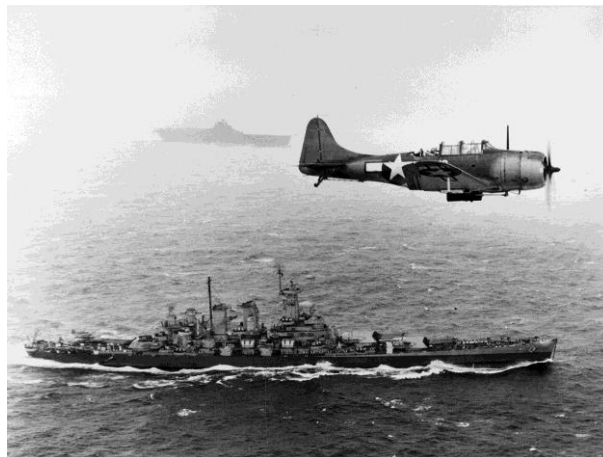
Second mission of Foresight: Analyzing wider impacts of change

1st Industrial revolution



Revolutions in machinery, manufacturing & transportation → Slum days, many suffered ill health due to starvation in Victorian Britain, such as these London children in 1860...

2nd



Enormous expansion of rail and telegraph lines, unprecedented movement of people and ideas, a new wave of globalization → and destruction...

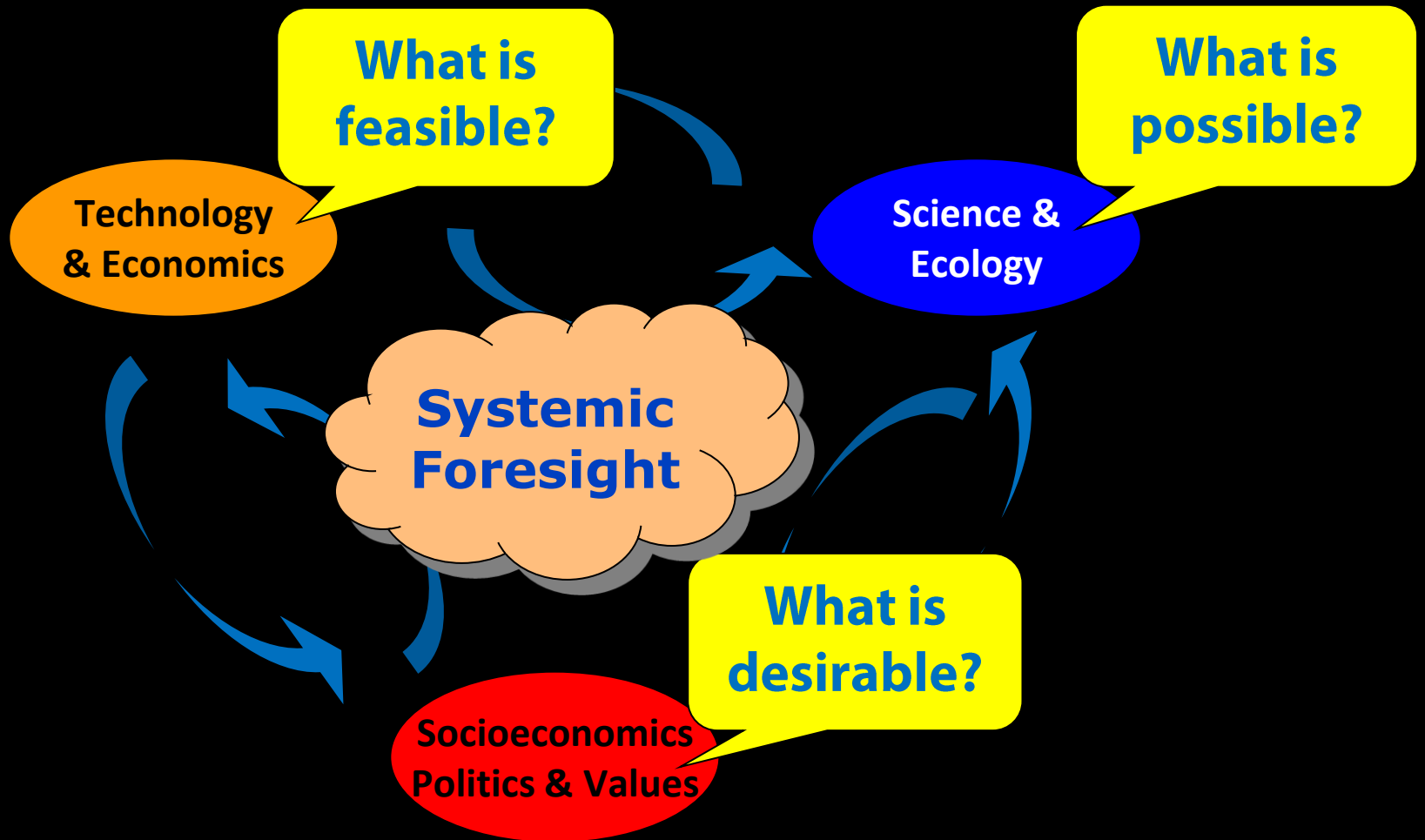
3rd



Increased access to goods and services → stress on natural resources, demographic change & the emergence of megacities...

The 4th Industrial Revolution: Some consequences – A day in futurama





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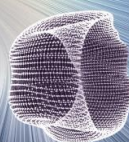
Is Africa the land of the
future?

Guest Editors: Olugbenga Adesida and
Gezi Karuri-Sebina



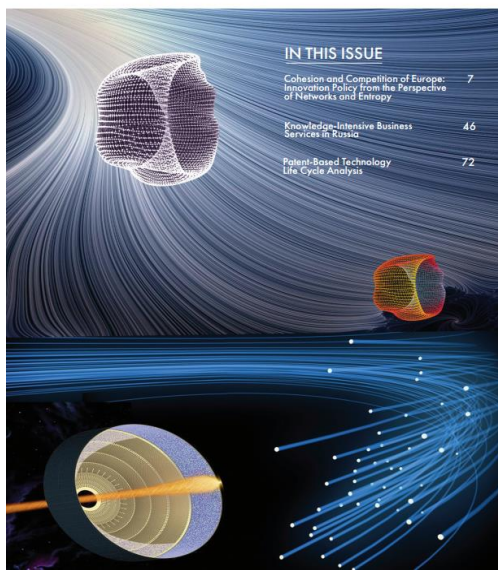
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***Designing scientifically possible,
economically feasible &
socially desirable
futures***

