A Good Disruption –
Redefining growth in the 21st century

FIRST MEETING FOR THE SEVENTH REPLENISHMENT OF THE GEF TRUST FUND

Paris, March 29nd 2017

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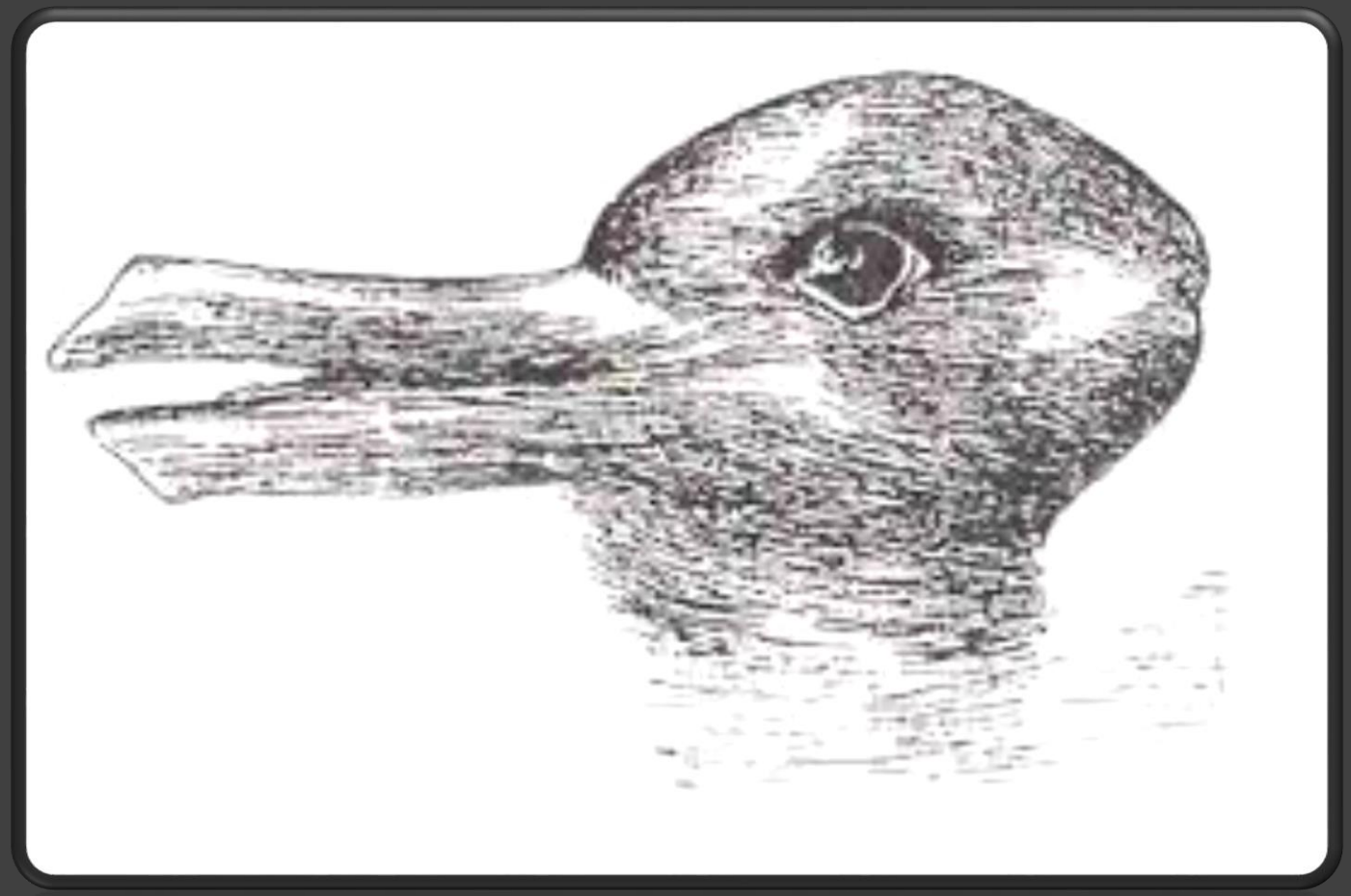
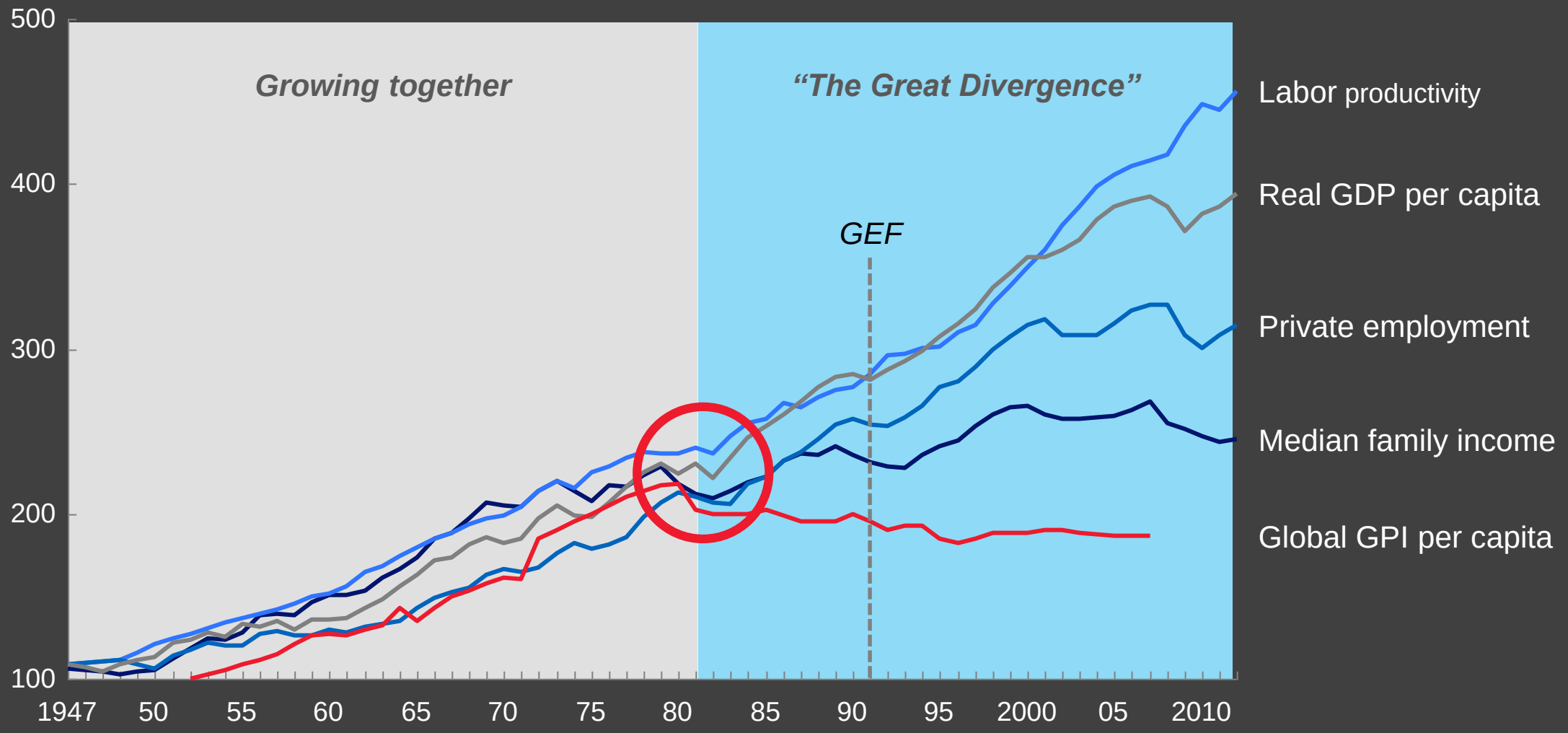
Congruence, anomaly, or new paradigm?



SOURCE: Thomas Kuhn, Structure of a Scientific Revolution (1964)

We are seeing a “great divergence”

U.S. labor productivity, GDP per capita, employment, median income, and Global GPI per capita
Indexed to 1947



SOURCE: Federal Reserve Bank of St. Louis, Brynjolfsson and McAfee , Kubiszewski et al. (2013)

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Annual GDP Growth rates in Germany, France, and the USA …

SOURCE: Insee, Statistisches Bundesamt, U.S. Bureau of Economic Analysis

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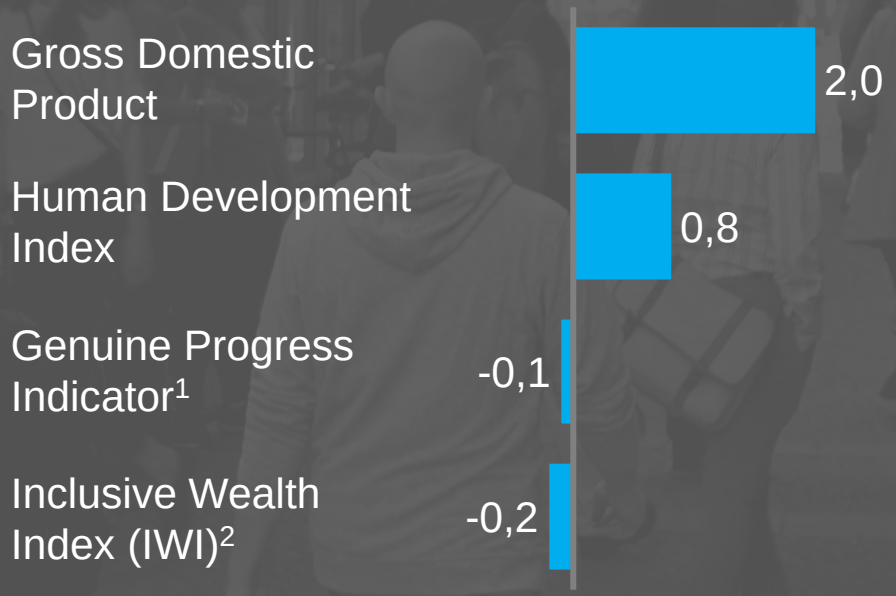
Growing poor – when costs outweigh the benefits

Progress per capita[3], globally, 1990-2010, real terms



Considerations

	Economic Capital	Social	Natural
Gross Domestic Product	✓		
Human Development Index	✓	✓	
Genuine Progress Indicator[1]	✓	✓	✓
Inclusive Wealth Index (IWI)[2]	✓	✓	✓

1 1990-2005, as later data not available globally,
2 IWI exists in two versions, one unadjusted, and one where adjustments are made for environmental damage, oil capital gains, and total factor productivity. The adjusted version is shown here,
3 Global population growth was 1.6 percent per year during the period

SOURCE: UNEP (2014a), Kubiszewski et al. (2013)

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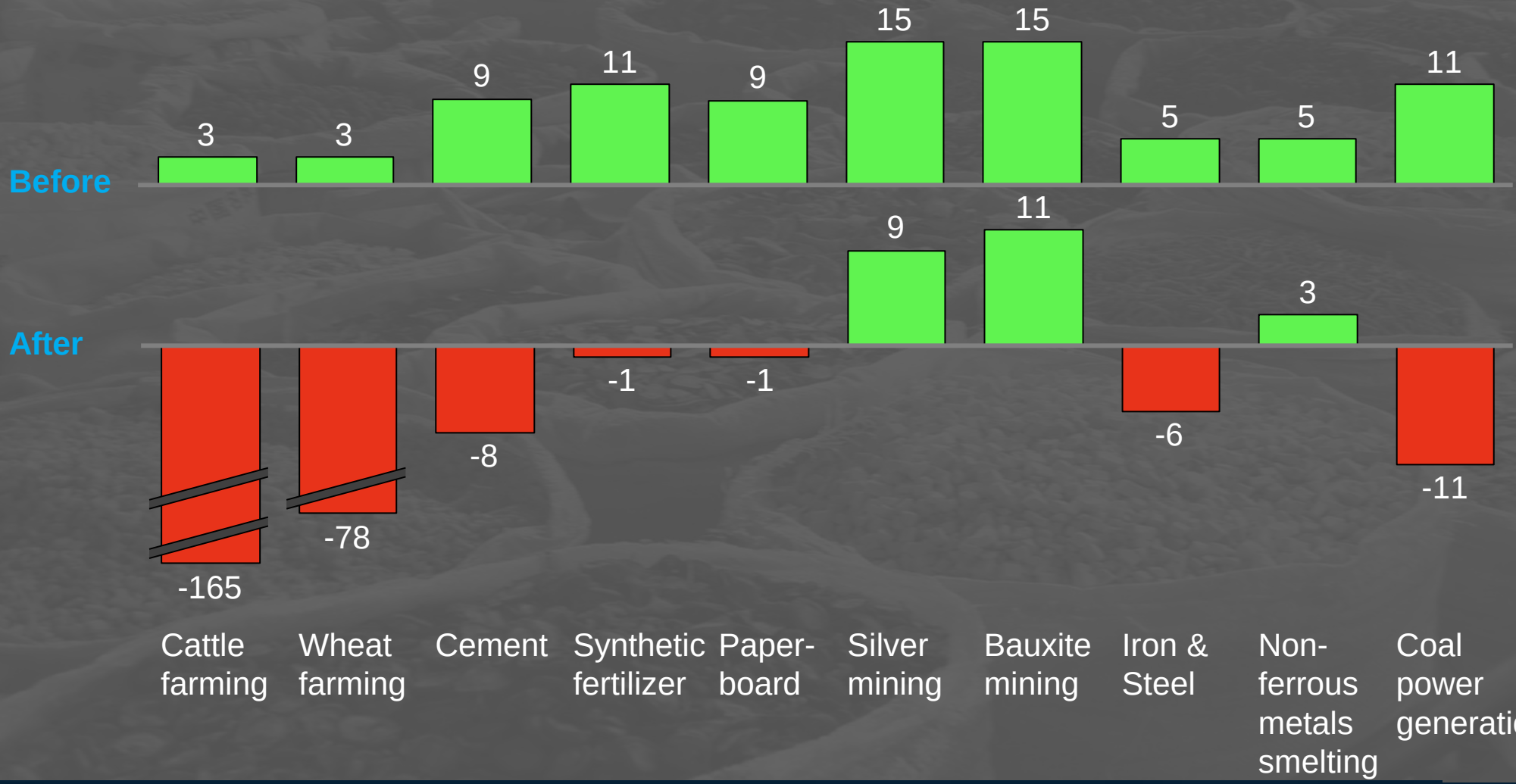
Insolvent - negative profit in the world's raw material industries with natural capital costs included

Profit margin (EBIT) before and after natural capital costs, based on top-2 companies in each Morgan Stanley Composite Index category, Percent, 2012



SOURCE: Adapted from: Trucost and TEEB (2013)

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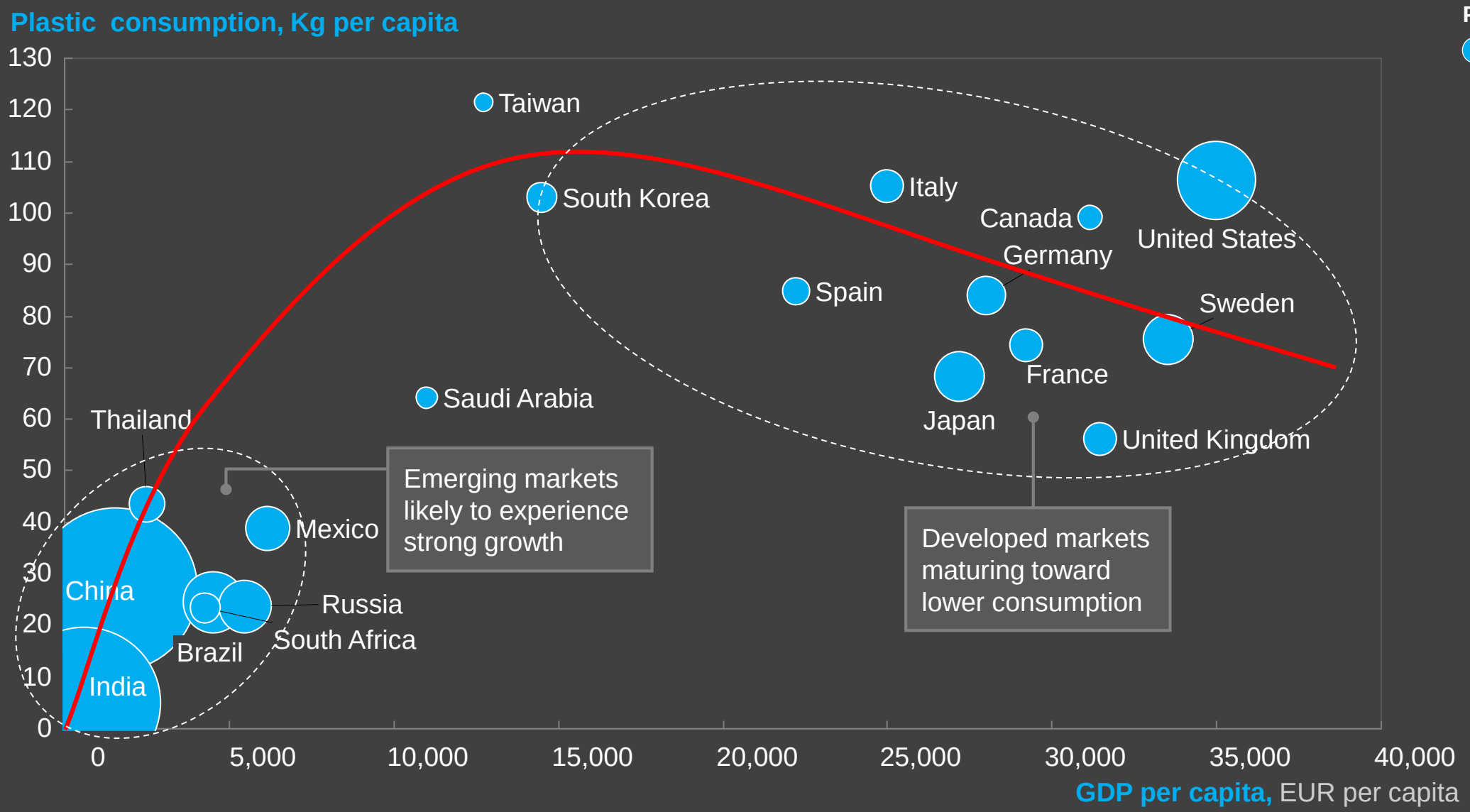
Waiting for Kuznets – example commodity plastics



1 Includes EPS, HDPE, LDPE, LLDPE, PET Resins, PP, PS, and PVC

SOURCE: TBC (Tecnon; Global Insight)

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The four pillars of a 21st century industrial economy

Net-positive norm

- New norm of net positive impact across manufactured, natural and human capital
- 'Good' – not 'less bad'
- Initially a voluntary norm, over time supported by formal externality pricing in more and more areas

Abundant clean energy

- Shift to renewable energy sources (hydro, solar, wind, biomass, …)
- Massive electrification
- New grid-architectures (off-, on-grid)
- Abundant cheap clean energy recognized as a key driver of economic growth

High-productivity systems

- Reducing waste in our largest systems recognized as a major source of wealth and improved environmental performance
- Focus on mobility, food, housing, as these three systems represent 70-80 per cent of all resource use
- Cities play major role in all the three largest systems of mobility, food, housing

A material bank

- Clear separation between biological and technical materials
  - Biological materials consumed, then returned safely to biosphere
  - Technical materials re-used many times (not consumed)
- Use of virgin finite materials radically lower than today
- Large secondary material industry and market

SOURCE: SystemiQ

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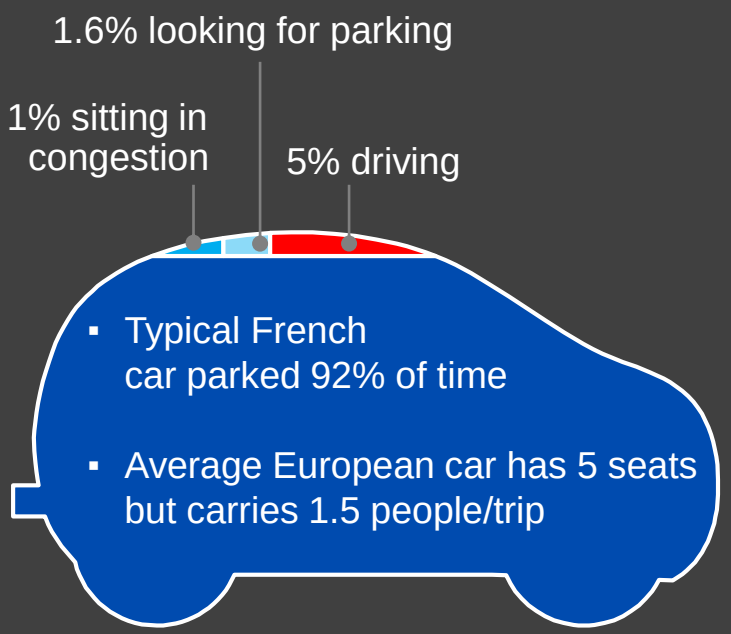
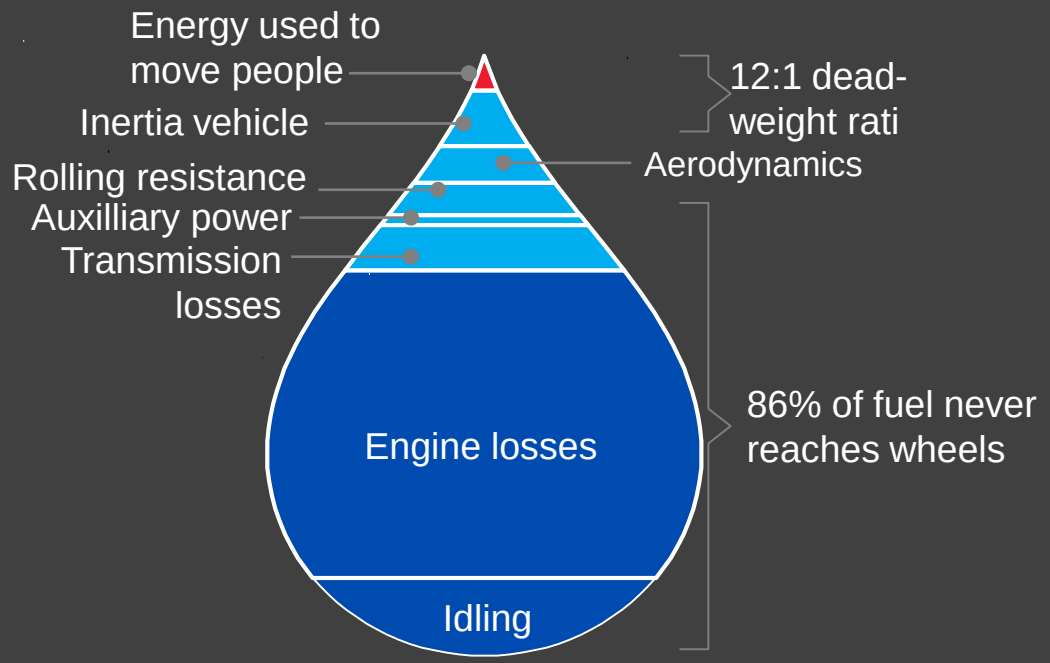
Efficient products, inefficient systems - structural waste in the mobility system

Car utilisation

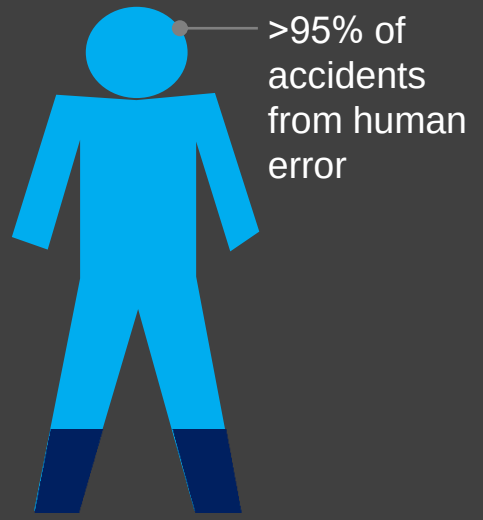


Tank-to-wheel energy flow - gasoline



Deaths and injuries/year on road

30,000 deaths in accidents and 4x as many disabling injuries



Land utilisation

- Road reaches peak throughput only 5% of time and only 10% covered with cars then
- 50% of most city land dedicated to streets and roads, parking, service stations, driveways, signals, and traffic signs

SOURCE: McKinsey Center for Business and Environment, Ellen MacArthur Foundation & SUN (2015)

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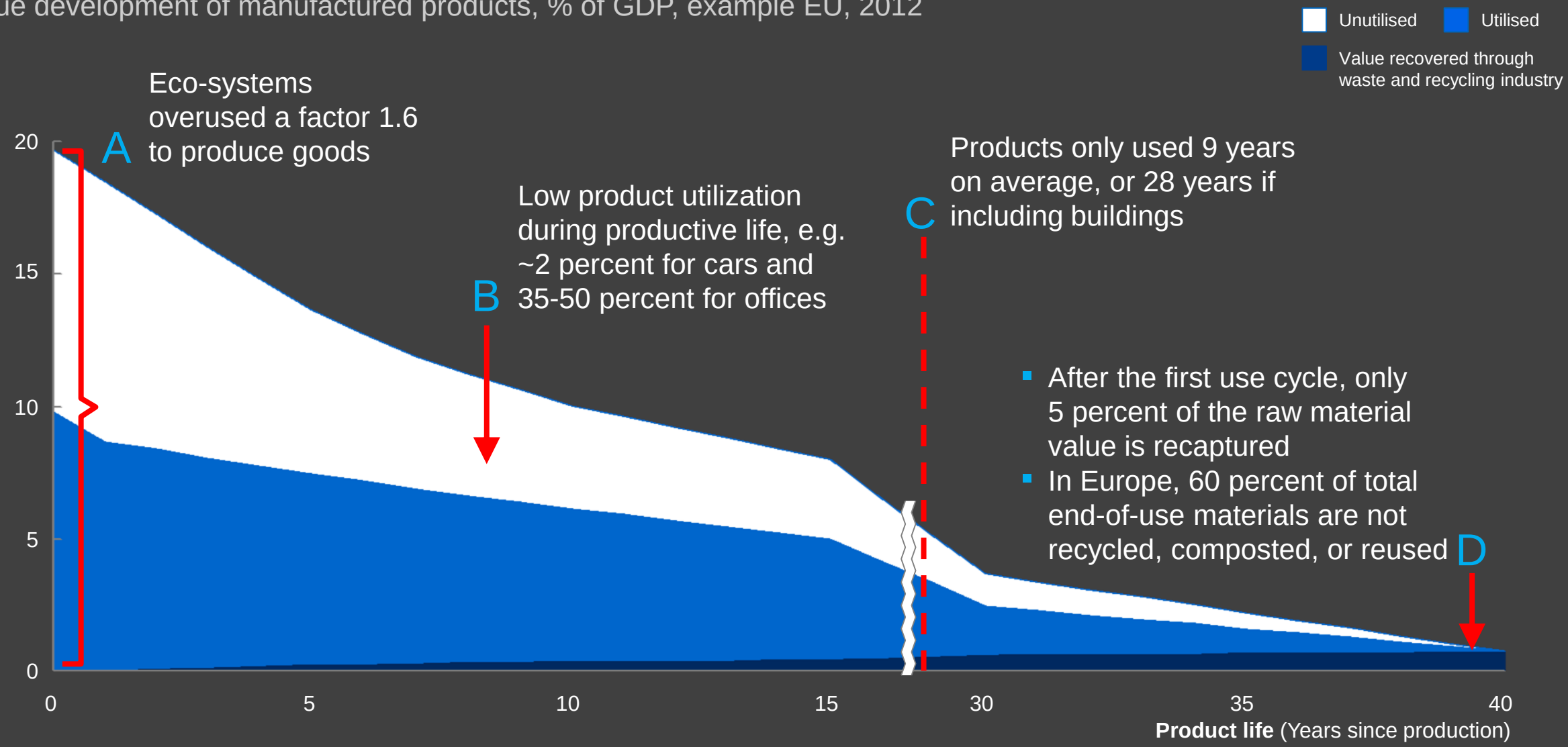
Waste, waste, everywhere

Value development of manufactured products, % of GDP, example EU, 2012



SOURCE: McKinsey Center for Business and Environment, Ellen MacArthur Foundation & SUN (2015)

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Cost-reduction potential in the three real life systems

Total annual cash-out costs per household; 2012,
EUR improvement potential for 2050

SOURCE: McKinsey Center for Business and Environment, Ellen MacArthur Foundation & SUN (2015)

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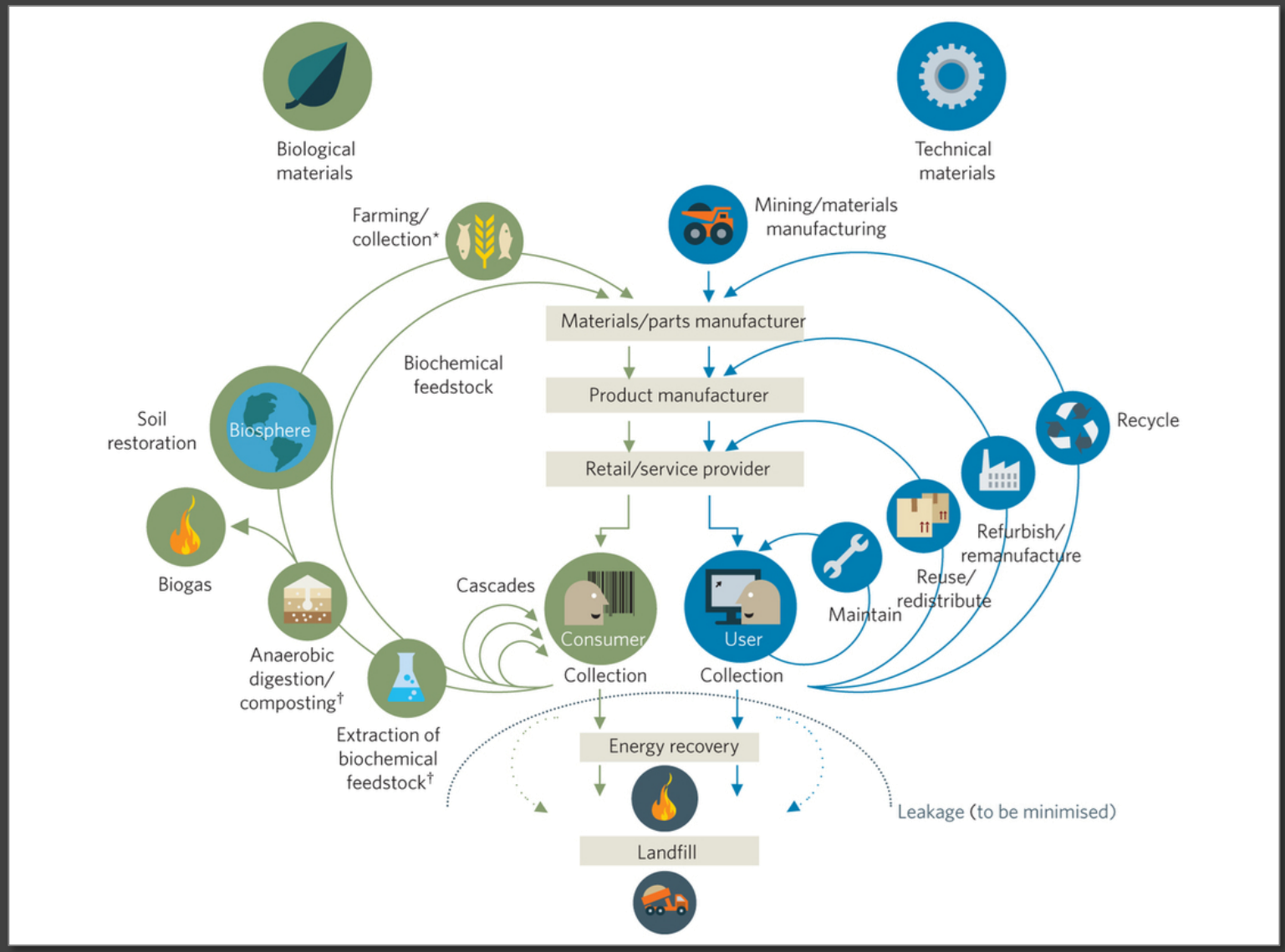
ReSOLVE – a menu of business actions for a better economy

	Examples	
REgenerate	▪ Shift to renewable energy and materials ▪ Reclaim, retain, and restore health of ecosystems ▪ Return recovered biological resources to the biosphere	
Share	▪ Share assets (e.g. cars, rooms, appliances) ▪ Reuse/secondhand ▪ Prolong life through maintenance,design for durability, upgradability, etc.	
Optimise	▪ Increase performance/efficiency of product ▪ Remove waste in production and supply chain ▪ Leverage big data, automation, remote sensing and steering	
Loop	▪ Remanufacture products or components ▪ Recycle materials ▪ Digest anaerobic ▪ Extract biochemicals from organic waste	
Virtualise	▪ Books, music, travel, online shopping, autonomous vehicles etc.	
Exchange	▪ Replace old with advanced non-renewable materials ▪ Apply new technologies (e.g. 3D printing) ▪ Choose new product/service (e.g. multimodal transport)	

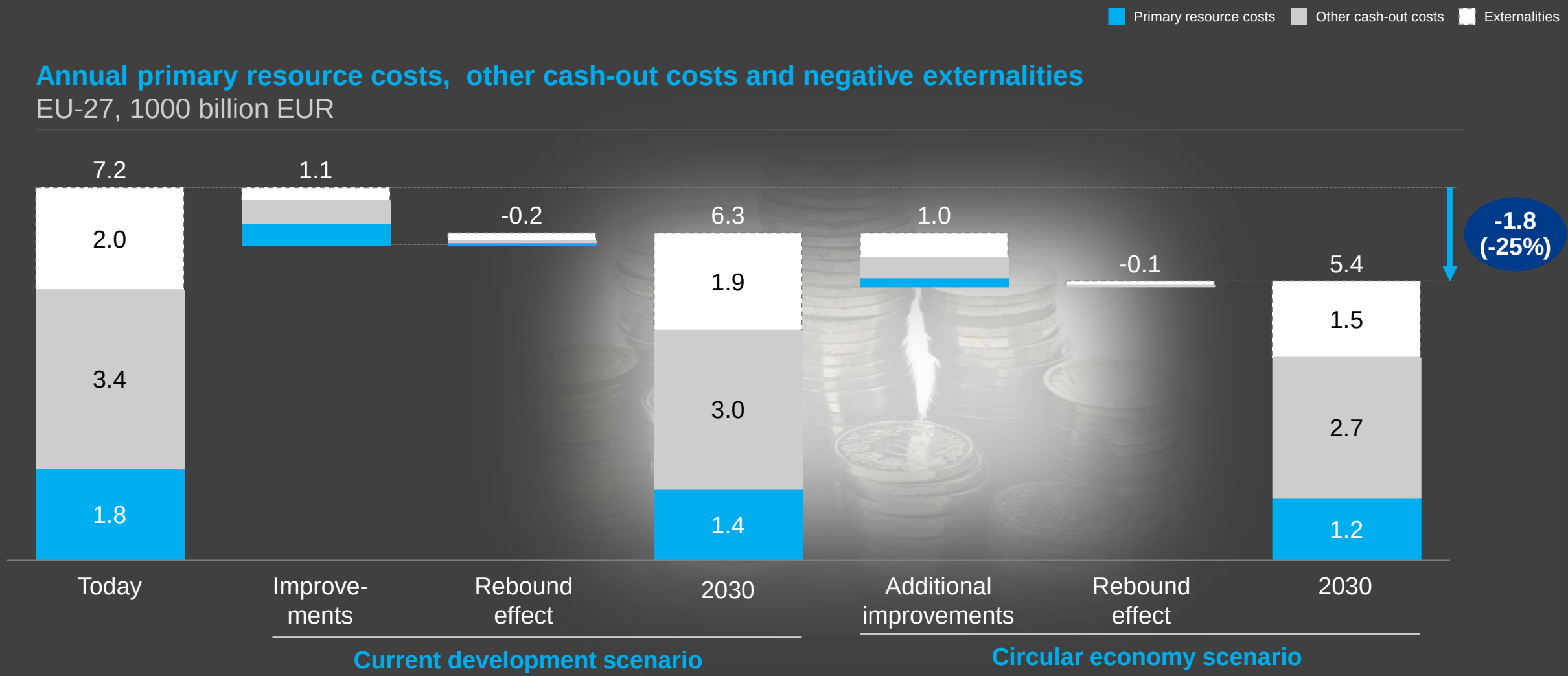
SOURCE: McKinsey Center for Business and Environment, Ellen MacArthur Foundation & SUN (2015)

In search of principles - outline of a circular, regenerative economy system



The circular economy opportunity – 2030 scenarios

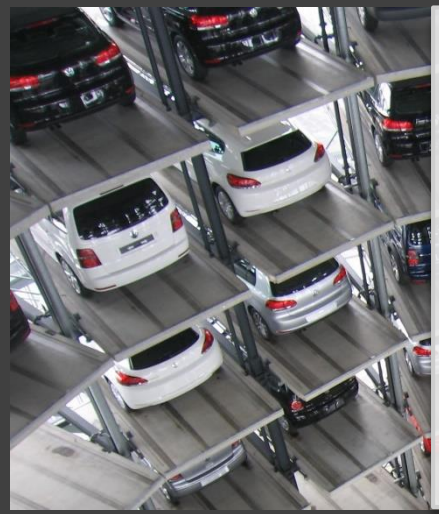
Mobility, food and built environment, societal perspective 2030



Better economic and environmental outcomes

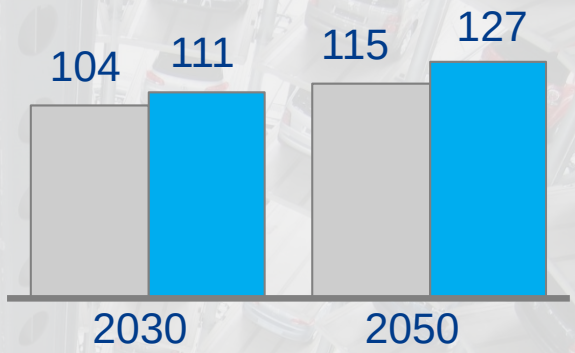
Indexed (2012 = 100)

Current development scenario
Circular scenario



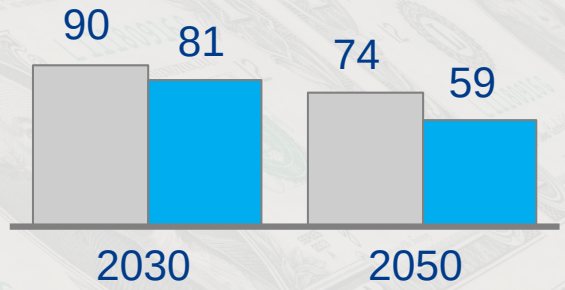
GDP

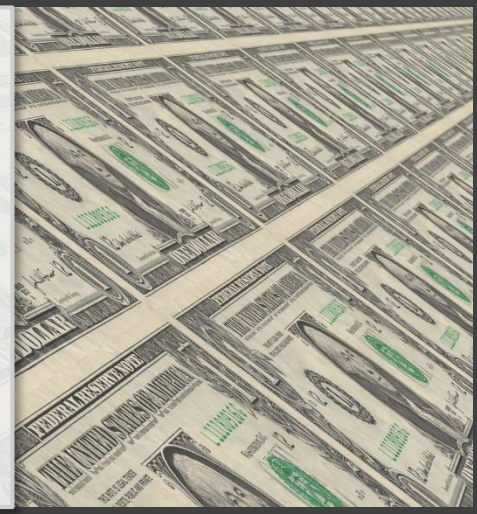
EU-27, indexed (2012 = 100)

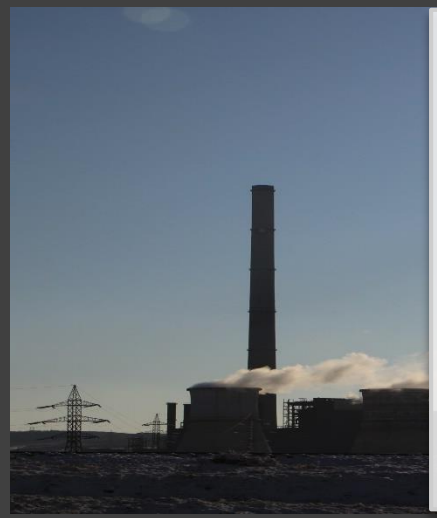


Direct user cash out costs

EU-27, indexed (2012 = 100)

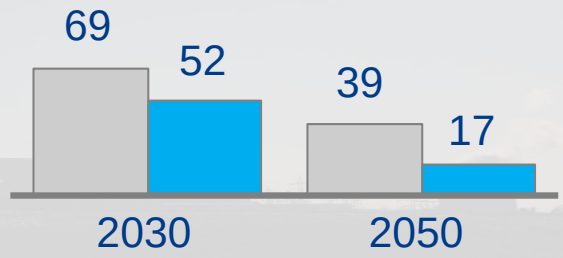






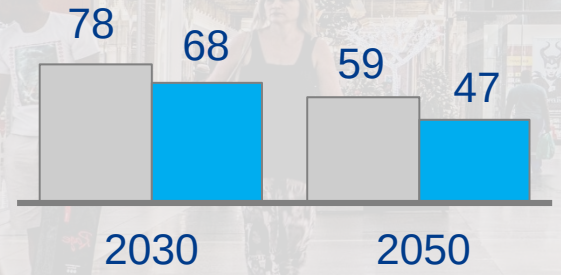
CO2 emissions

EU-27, indexed (2012 = 100)



Primary material consumption

EU-27, indexed (2012 = 100)



SOURCE: EU 27, McKinsey Center for Business and Environment, Ellen MacArthur Foundation & SUN (2015)

Five reasons why

A case for change

- Paris tailwind
- Sixty trillion dollars to loose
- Peak child

An intuition reset

- Precedents
- Catalytic „Tesla“ moments
- Tipping points

Governments new role

- Market makers
- Entrepre-neurial state
- Meso-economy

Power of the crowd

- Explosion of expressive power
- New transparency
- Trust revolution

New capitalist

- Embracing new rules
- Re-assessing risk
- Long-term-ism

SOURCE: McKinsey Center for Business and Environment

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Systemic change – three TOCs to guide GEF

Theory of the Case
"A superior solution"

- An economic ("Decoupling"), social ("SDG's") and environmental imperative ("boundaries")
- A technology disruption ("2nd Machine Age")
- A portfolio of initiatives: Integrated, focused, driver-based, MEA-aligned, SDG-inspired, results-driven, cross-checked, private-public

Theory of the Catalyst
"Self-perpetuating interventions"

- Markets – creating and derisking new markets
- Measures – IWI accounting as a new norm
- Management – the next LEAN

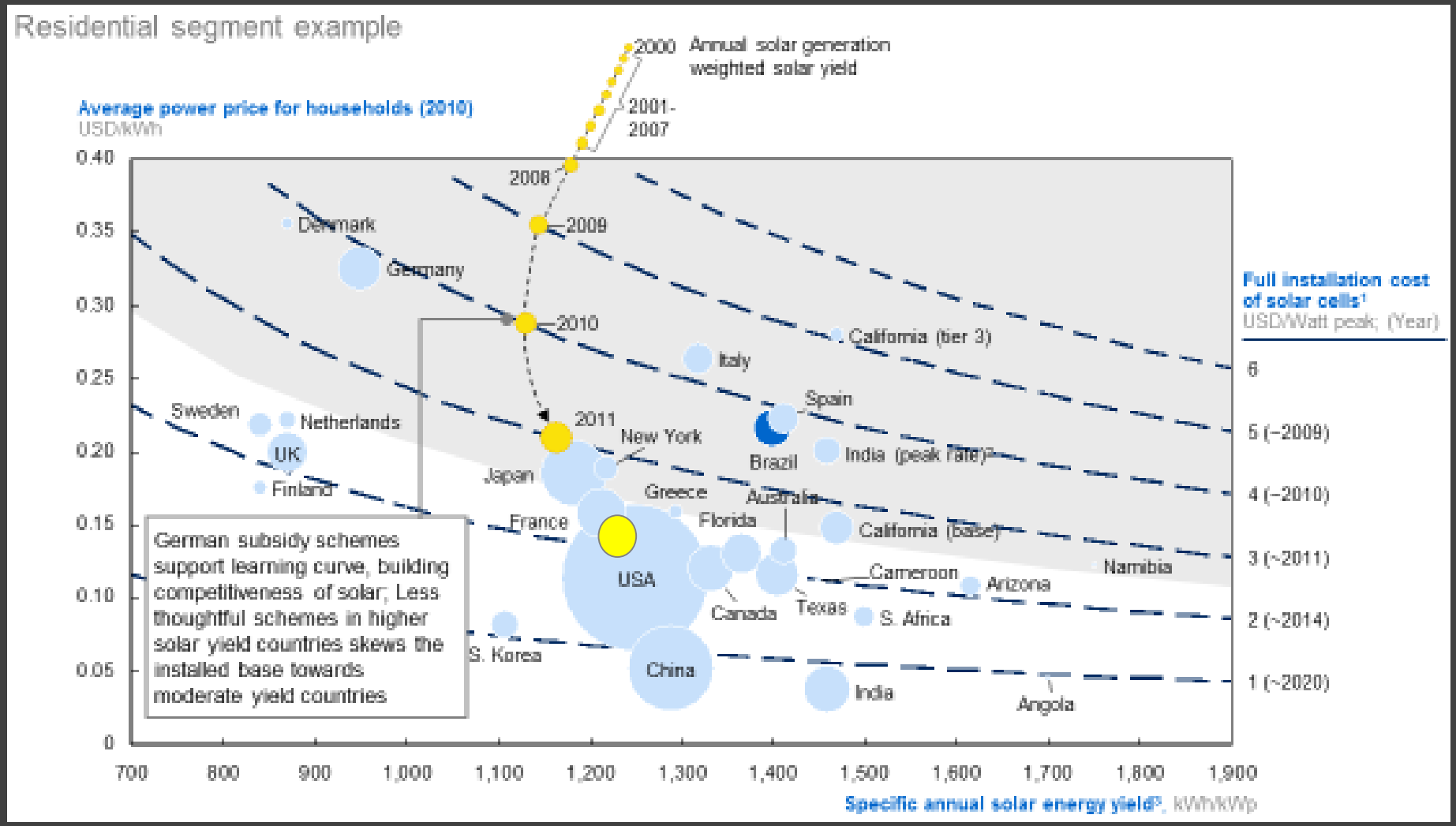
Theory of Change
"Agency and leadership"

- International agreements, facilities and mechanisms (CBD, UNCCD, UNFCCC, Minamata, Stockholm, Montreal)
- Reginal and national agendas EU Circ. Econ. Action Plan, Finland, China, Sweden, …
- Systems alliances (New Plastic Economy, Trash-free Sea Alliance, Tropical Forest Alliance)

Creating markets - there are precedents (e.g., solar energy system)

Residential power demand (2009); TWh/Year

Countries/Locations where best in class solar is currently economically competitive for some segments



ReSOLVE – a menu of resource performance levers addressed in GEF's portfolio of initiatives

Strong
Medium
No link

		Impact programs														
		Land-scape Resto-ration	Trans-forming Energy Systems	Food Systems	Sustai-nable Cities	Environ-mental Security	Healthy Oceans for Sust. Fisheries	Natural Capital	Green Finance	Green Infras-tructure	Agri Com-modities Supply Chains	Amazon Land-scapes	Wildlife for Sust. Develop ment	Inclusive Conser-vation	Circular Economy	Integrated Planning MEAs/ SDGs
	SDGs	12, 13, 15	9, 11, 13	2, 12, 13	7, 9, 11, 13	2, 13, 14, 15		14, 15	All	2, 5, 6, 7, 9, 11	12, 13, 15	6, 12, 13, 15	1, 5, 8, 10, 15	All	12, 14	All
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SOURCE: McKinsey Center for Business and Environment, Ellen MacArthur Foundation & SUN (2015)

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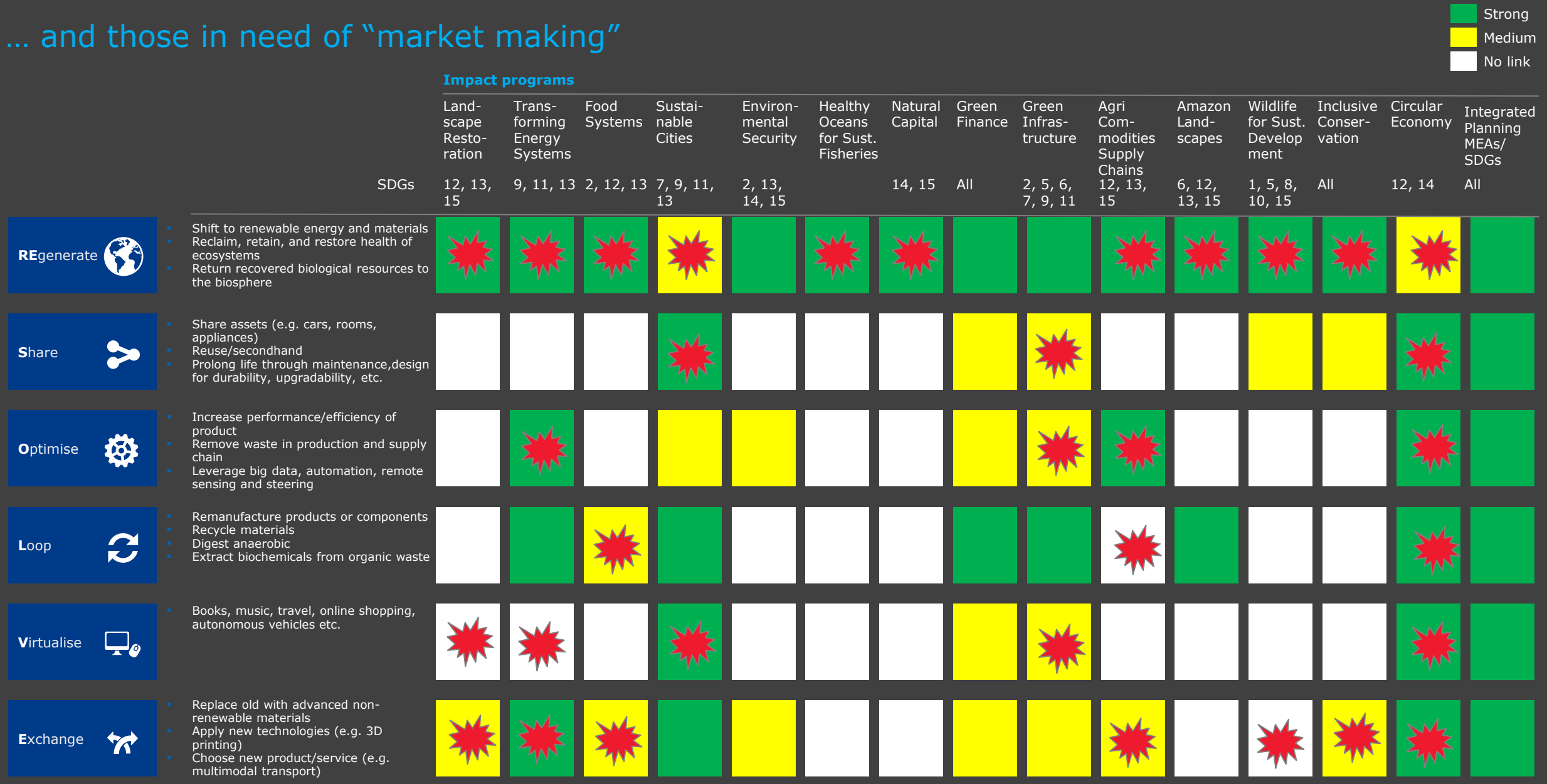
… and those in need of "market making"



SOURCE: McKinsey Center for Business and Environment, Ellen MacArthur Foundation & SUN (2015)

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A new set of priorities fit for the 21st century

GDP growth	Inclusive Wealth Index growth
Labor productivity	Resource productivity
Projects	Systems
Divergence	Convergent decision making
Products	Performance
Externalize	Take-back/EPR as a norm
Costs	Quality
Product innovation	System innovation
Net negative	Net positive norm

SOURCE: Thomas Kuhn, Structure of a Scientific Revolution (1964)

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