GLOBAL FOOD TRENDS

GROWTH

- The global population is predicted to reach 9.8 billion in 2050 – growing from 7.7 billion today and nearly tripling from 3.7 billion in 1970.
- Overall food demand is on course to increase by more than 50%, with demand for animal-based foods predicted to increase by 70%.
- Urban areas have more than doubled since 1992.

TRENDS

- Agriculture accounts for around 25% of global greenhouse gas (GHG) emissions.
- Cattle, sheep, and goats use two-thirds of global agricultural land and contribute to half of the agricultural GHG emissions.
- Beef demand is predicted to grow by 88% by 2050, but even in the US it makes up only 3% of calories consumed.
- Land degradation has reduced the productivity of 23% of the global land surface.
- More than a third of the world's surface and 75% of freshwater is dedicated to crops/ livestock.
- Up to a million species are threatened – including important pollinators – and invasive alien species are increasing (by 70% in 21 countries).
- 30-50% of the global food produced is wasted.
- Unhealthy diets now pose a greater risk to morbidity and mortality than unsafe sex, alcohol, drug, and tobacco use combined.

RISKS

- If today's levels of production efficiency were to stay the same through 2050, feeding the planet would entail clearing most of the world's remaining forests, wiping out thousands more species and releasing enough GHG emissions to exceed Paris Agreement limits, even if GHG emissions from all other human activities were removed.
- The World Resources Institute has identified three great 'gaps' to fill by 2050, including:
  - The **food gap** – 56% more crop calories (than 2010) will need to be produced
  - The **land gap** – even if pasture and crop yields continue to grow at current rates, the difference in agricultural land area needed is nearly twice the size of India
  - The **GHG mitigation gap** – to keep global temperature rise within the ambition of the Paris Agreement, agricultural emissions need to stay below 4 Gt by 2050, but business as usual means that they're likely to rise to 15 Gt – a 11 Gt gap.

QUESTIONS TO EXPLORE

- How could crop calories and nutrition be increased while decreasing agricultural land use?
- How could food (especially high GHG-intensity food) demand be managed with a growing global population, and what could the social and cultural impacts be?
- How could biodiversity be retained in a future world system?

The data in this factsheet comes from the World Resources Institute Report on Creating a Sustainable Food Future available at: https://wrr-food.wri.org/executive-summary-synthesis, the UN report on Nature's Dangerous Species Decline: https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/ , the Global Food Report: https://www.imeche.org/policy-and-press/reports/detail/global-food-waste-not-want-not, and the EAT Lancet Report: https://eatforum.org/content/uploads/2019/07/EAT-Lancet_Commission_Summary_Report.pdf

SECTOR FACTSHEET

LUXURY GOODS MARKET

DEFINING LUXURY

- According to economists, "a luxury good is a good for which demand increases more than proportionally as income rises, so that expenditures on the good become a greater proportion of overall spending; luxury goods contrast with necessity goods, where demand increases proportionally less than income".
- In practice, the concept of luxury can be relative...and this is redefining how and what brands produce.
- Fashion is not always luxury, though much of fashion is accessible luxury and luxury fashion imitates accessible categories like sweatpants, sneakers and other casual footwear.
- There are nine main segments in the global luxury goods industry:
  - Luxury cars, luxury hospitality and personal luxury goods (fashion, leather goods, beauty, accessories) account for 80% of the total market
  - The other segments are fine wines, gourmet food and dining, fine art, high-end furniture and housewares, private jets and yachts, and luxury cruises.

GROWTH

- The global luxury goods market is worth approximately EUR 1.2 trillion in 2018, 5% higher than in 2017.
- Luxury cars made up close to half of sales, at EUR 495B (44%), 5% YOY.
- Personal luxury was the second largest segment with EUR 260B (23%), growing 6% YOY
  - Europe is the largest region by sales (32%), the Americas are a close second (31), followed by Asia excluding Japan (24%), Japan (8%) and the rest of the world (5%)
  - Chinese nationals lead in personal luxury goods purchases, making 33% of purchases; Americans contributed 22%, Europeans 18%, other Asian 11%, Japanese 10%, rest of the world 7%
  - Top 10 companies had 48.2% of market share in 2018
  - This segment is not immune to the labour concerns plaguing fast fashion – brands are using 'Made in Europe' to signal higher production standards than 'Made in Bangladesh or Vietnam', but they are producing in poorer European countries in the lower Mediterranean and paying low wages.

TRENDS

- Increasingly, luxury consumers are shopping online – 22% growth in 2018, 10% of all luxury sales.
- Digital will redesign the retail ecosystem, emphasis will be on experience over products
  - Technology is being integrated in the customer experience: AR, AI are changing how affluent (young) consumers shop and driving growing of independent luxury brands.
- The second-hand market for luxury goods rose to EUR 22B, equivalent to almost 10% of total sales thanks to strong growth in Europe and among online platforms; watches and jewellery were primary categories, making up 80% of all purchases.
- Luxury consumers are getting younger and more diverse and brands are adapting to preferences of younger consumers in terms of product, communication, engagement and distribution
  - Consumers: Millennials (23-36) makes up 40%, and Generation Z (16-22) 7%
  - Purchases: Gen Y 31%, Gen Z 2%; made up almost all of the market's growth (85% in 2017)
  - Diversity is an increasing priority: Modest fashion accounted for approximately 40% of luxury women's ready-to-wear, while inclusive (curvy/plus size) represented about 20%
  - Millennials/Gen Z are aren't just looking for traditional qualities of luxury, quality and scarcity, but also emotional and personal context – products that address climate change, fair labour, gay rights, religious freedom, feminism and animal welfare are one way to do this.

QUESTIONS TO EXPLORE

- What is luxury in the context of Gapminder's four income groups?
- How is the digital world changing our understanding of luxury?
- What is the role of culture and authenticity in luxury goods? When is a brand being inclusive, and when is it appropriating?
- What is the balance between inclusive supply chains that draw from talent and resources all around the world, and just supply chains that produce in countries with fair labour laws?

The data in this factsheet comes from Bain's "The Future of Luxury" (2018), Deloitte's "Global Powers of Luxury Goods" (2018 and 2019), Global Web Index's "The Luxury Market in 2019: What Brands Should Know" (2019), and Quartz's "Nobody knows what luxury is anymore" (2018)

GLOBAL TRANSPORT/ENERGY TRENDS[1]

GROWTH

- About 30% of total global energy consumption in 2018 went to transporting people and goods from one place to another.
- Transportation is responsible for 24% of direct CO_2 emissions from fuel combustion.
- Global transport sector energy intensity (total energy consumption per unit of GDP) dropped by 2.1% in 2018 after falling an average 1.5% per year between 2000-2017.
- To put transport efficiency on track with the SDGs, energy intensity must drop by 3.4% on average annually from 2019 to 2030 – more than double the annual average rate of decrease since 2000.
- By 2030[2], annual passenger traffic will exceed 80 trillion passenger-kilometers — a 50% increase; global freight volumes will grow by 70%; and an additional 1.2 billion cars will be on the road by 2050 — double today's total.
- An additional 1.2 billion people (>16% of global population) will be 60 or older by 2030, so we'll also need age appropriate and affordable mobility solutions.
- Total energy demand is expected to grow by about 27%, or 3,743 million tons oil equivalent (mtoe) worldwide from 2017 to 2040.

TRENDS IN ENERGY PRODUCTION

- **Renewable energy has already reached price and performance parity** on the grid and at the socket in developed economies, and many transition economies will follow very soon.
- **Wind and solar** are driving down electricity prices. In the US, 15 of the top 20 solar and wind states have electricity prices below the national average.
- **Bioenergy** will continue to expand renewables usage between 2018 and 2023 by about 30%, driven by demand for bioenergy in heat and transport during the transition to electrification. Other renewables have less penetration in these two sectors, which account for 80% of total final energy consumption.

TRENDS IN TRANSPORT

- **Electric car deployment** has been growing rapidly over the past ten years, with the global stock of electric passenger cars passing 5 million in 2018, an increase of 63% from the previous year.
- Around 45% of electric cars on the road in 2018 were in China. Europe and the US each accounted for around 25%.
- **Within the United States**, 85% of people commute by car; of those 90% are commuting alone.
- **Within Asia**, India[3] has seen a phenomenal growth rate in vehicles – a staggering 2599% since 1981, while road networks have grown only by 33% in the same period. India has overtaken China to emerge as the world's biggest market for two-wheeler vehicles.
- **Female commuters** are one reason for the growth, preferring the ease of navigating traffic on gearless scooters. Honda leads the scooter market and 35% of its customers are female.
- **Ride-hailing and ride-sharing** services have radically transformed the commuter landscape. Car sharing has grown from one million users in 2011 to 10 million in 2017 and is forecast to grow to 36 million by 2025.
- **First and last mile mobility** solutions are growing rapidly in many transition economies, to connect people from poorly designed transport infrastructure to residential areas.
- Use of **e-scooters** is also on the rise, with options in over 100 cities providing approximately 20 million rides in just over one year.
- **Battery swapping** and battery charging infrastructure is set to transform cities by reducing the impacts of transport related emissions.
- By 2025, **Artificial Intelligence** (AI) is expected to provide $173 billion in cost savings across the entire automotive supply chain, ranging from procurement to research and development.
- **Self-driving technology** will be the biggest opportunity AI creates in the transportation space: It will present a $556 billion opportunity by 2026, growing at a 39% CAGR from $54 billion in 2019.
- **Radical changes in the way we travel** could transform the way we move around the world:
  - **The Hyperloop** could move people at aircraft speeds for the price of a bus ticket. The levitated pod uses an electric motor to glide silently through a low-pressure tube. The goal is to start moving passengers in 2021[4], with routes under development in five countries, including India.
  - A new **hypersonic engine** being developed by UK scientists could cut London-Sydney flight times to just four hours by the 2030s[5]
- **Reasons we travel** may also shift in future as remote working and more flexible approaches to employment continue to change.[6]

GLOBAL TRANSPORT/ENERGY TRENDS

RISKS

- If we do not decarbonise our transport and energy fuels, we will create more and more dangerously polluted and congested cities around the world–impacting health, intelligence levels and quality of life.
- Global economic growth is dependent on existing energy and transport fuel systems. If we don't rapidly and effectively transition, embracing the opportunities from electrification, the bioeconomy and fit-for-purpose mass transit, the global economy will begin to contract. (e.g. India currently loses $21.3 billion per annum due to additional fuel consumption and delays caused by congestion.)

QUESTIONS TO EXPLORE

- How can we create mass transit solutions which offer convenience, affordability and comfort in some of the world's densest cities?
- How can we accelerate faster towards bioenergy solutions which will be critical for the energy transition?
- What are the likely implications of continued growth in Asia and Africa's middle class populations, for the energy and transport sectors?

1 The data in this factsheet comes from the International Energy Agency at: https://www.iea.org/tcep/transport/, the IEA Global EV Outlook 2019: https://www.iea.org/gevo2019/, KPMG Accelerating Mobility Report: https://assets.kpmg/content/dam/kpmg/uk/pdf/2019/03/accelerating-mobility.PDF, Business Insider report on AI in transportation: https://www.businessinsider.com/ai-in-transportation-report-2019-3?r=US&IR=T

2 https://www.icao.int/Meetings/iwaf2018/Documents/Global%20Mobility%20Report2017.pdf

3 https://timesofindia.indiatimes.com/auto/bikes/india-is-now-worlds-biggest-2-wheeler-market/articleshow/58555735.cms

4 https://www.bbc.co.uk/news/technology-42730916

5 https://www.telegraph.co.uk/news/2019/09/24/british-tourists-will-able-fly-australia-4-hours-2030-uk-space/

6 https://www.forbes.com/sites/abdullahimuhammed/2018/12/21/10-remote-work-trends-that-will-dominate-2019/#69a117927c72

SECTOR FACTSHEET

THE BUILT ENVIRONMENT

DEFINING THE BUILT ENVIRONMENT

- The term built environment refers to the human-made environment that provides the setting for human activity. It can be defined as "encompassing places and spaces created or modified by people including housing and buildings, parks, and transportation systems".

TRENDS

- The **global population** is predicted to reach 9.8 billion in 2050 – growing from 7.7 billion today and nearly tripling from 3.7 billion in 1970[1]. This creates increased demand for housing.
- **Urbanisation** – By 2030 nearly 9% of the planet will live in just 41 megacities (>10m), and the number of people living in cities of more than 1m will increase by 22%, to nearly 4b.[2]

TRENDS IN DEMAND

- **Demographic shifts:** By 2030, 43% of households will consist of one or two people, boosting demand for smaller living quarters.[3] Meanwhile an ageing population will necessitate large housing that can host multiple generations, especially in China and India.
- **Carbon neutral housing:** Countries with mandatory or voluntary guidelines for building-related energy consumption or GHG emissions jumped from 38 in 1994 to 88 by 2018.
- **The digital economy:** Half of the global population has internet access, and 65% of millennials and Gen Zs interact more digitally than in person – increasing interest in home offices, remote work and smart homes.
- **Homelessness:** It's estimated that approximately 150 million people, about 2% of the global population, are homeless, while about 1.6 billion, more than 20% of the global population, lack adequate housing.[4]

TRENDS IN SUPPLY

- **Construction technology and methods:** Robotics and onsite drones are increasingly integrated into construction, while digital collaboration tools, modular construction and prefabrication are reducing costs.
- **Smart tech:** Amazon is partnering with construction companies to install Alexa in new units, using the Internet of Things to make homes "smart" and energy efficient.
- **Shared housing:** With dorm-style communal kitchens and lounge spaces, shared housing is one new trend designed to combat housing scarcity.
- Some tech innovations with potential to transform infrastructure:
  - **Building Information Modeling (BIM)** software allows professionals, from architects to engineers, to collaborate digitally in 3D modelling spaces.
  - **3D printing** can reduce cost and increase efficiency and safety for mega-projects.
  - **Mass timber** is increasingly replacing other building materials like cement and steel, reducing energy consumption up to one-third. Norway's new 18-storey Mjøsa Tower is the tallest timber tower in the world.
  - **Roads made with recycled plastics** – quicker installation times, triple the service life and less disruptive maintainance compared to asphalt.

THE BUILT ENVIRONMENT

RISKS

- Rapid urbanisation, increasing rent and housing prices, supply not keeping up with demand, land scarcity and shifts in household composition have created a global shortage of affordable housing. A recent survey revealed that of 200 cities polled around the globe, 90% were considered unaffordable when applying the widely-used standard of average house prices being more than three-times median income.[5]
- Extreme weather events, which are expected to increase due to climate effects, can cause immediate, wide-scale harm on the built environment.

QUESTIONS TO EXPLORE

- How could the built environment accommodate both the ageing population and the increasingly digital millennials and Gen Zs?
- How could housing be more resilient to future climate risks?
- What is the housing demand in the context of Gapminder's four income groups?
- What role does culture play in housing demand, and how can we leverage new technologies to meet these variations in demand?

1 World population projected to reach 9.8 billion in 2050 and 11.2 billion in 2100. (2017)

2 Building the Housing of the Future. (2019)

3 Building the Housing of the Future. (2019)

4 As Cities, Grow, So Do the Numbers of Homeless. (2017)

5 10 ways cities are tackling the global affordable housing crisis (2019), Housing Affordability in a Global Perspective (2018)