REIMAGINING TOMORROW'S CITIES

Megatrend: Rapid Urbanization
Sustainability Challenge(s): Industry, Innovation and Infrastructure (**SDG 9**) &
Sustainable Cities and Communities (**SDG 11**)

As the world's population grows, people will be drawn to cities in massive numbers. The speed of the population shift from rural to urban requires society as a whole to adapt to this megatrend of rapid urbanization. People are specifically drawn to 'mega' cities, with populations of more than 10 million people. From now until 2050, the urban population will increase from 55% to 68% of global population, adding another 2.5 billion people to cities around the world.[1] This megatrend will require more housing, more amenities, more services and a concentration of resources in cities. Most of all, the aforementioned will need to be used efficiently.

When adapting to a change, it is tempting to stick to old habits. An example: the construction industry may be tempted to stick to building with concrete or paving with asphalt. These practices may no longer suffice for any city, let alone a megacity. Rapid urbanization poses an opportunity that must be grasped in a sustainable manner to prevent these cities from becoming unliveable. Larger buildings can be efficiently heated, cooled, and supplied with electricity. If the building is constructed with concrete however, it may not exist long enough for these gains to outweigh the greenhouse gasses emitted when producing the cement[2]. Another example: shared vehicles can lower individuals' carbon footprints, but this gain is lost if the additionally laid roads these cars drive on are made of asphalt[3]. And perhaps both examples offer solutions that are not as adaptable as required in an ever-expanding urban area.

The infrastructure of tomorrow needs to be more resilient than the current standard. There are many examples of services or facilities that must be able to adapt to a growing number of users. Low-rise residential areas may have to convert into high-rises that house more people. More people in turn may require more digital services, a different approach to maintaining personal security and a radical overhaul of the healthcare system and waste management.

Dense city populations will drive new business models as consumers search for those that save them time and effort. Efficiently sharing services between residents can benefit the entire urban area, as it reduces the need for individual ownership. A variety of technologies can help in creating and sustaining this new way of living. This offers many opportunities.

[1] Revision of World Urbanization Prospects, UN DESA, 2018. Link
[2] Making Concrete Change: Innovation in Low-carbon Cement and Concrete, Chatham House, 2018. Link
[3] Greenhouse Gas Emissions from Asphalt Pavement Construction: A Case Study in China, Feng Ma et al, 2016. Link

YOUR CHALLENGE:

Choose one specific topic and assess **what your company can do** (alone or in collaboration with other companies or organizations) to keep cities liveable, accessible, efficient and make them future and environmentally proof in light of the megatrend of rapid urbanization. You are encouraged to consider the secondary effects your plan may result in. Megacities will have a lot to offer to its residents but will also face many challenges. Your team is encouraged to explore these opportunities and work on a product, service or solution that your company could develop and that can contribute to wellbeing in the (mega) city of today and tomorrow. Build the business case and prove that it will work, with impact!

FUELING EQUAL COMMUNITIES

Megatrend: Climate Change and Resource Scarcity
Sustainability Challenge(s): Affordable and Clean Energy (**SDG 7**) & Gender Equality (**SDG 5**)

Climate change is here and now and the energy transition from fossil fuels to renewable energy is at the heart of climate solutions. Within the total consumption of fossil fuels, power generation and transport together accounted for over two thirds of total emissions in 2019 and have been responsible for almost all global growth since 2010[1].

Living standards across the world are strongly correlated with access and reliability to power: think about the impact of the increasing access to power in our societies at the end of the 19th century, or you could think of how a power outage would disrupt your weekly routine.

In this respect, an often-overlooked aspect is the social impact of power inaccessibility (or even energy at large): lack of electricity shortens the time available for professional, recreational and educational activities and hinders access to internet connection devices. Looking at basic human needs, lack of cooking fuels forces many women and girls to forage to feed their families, hindering their work options and exposing them to health risks.

It is estimated that currently in the world, some 770 million people live without access to electricity (mostly in Africa and Asia) and more than 2.5 billion people around the world lack access to clean cooking facilities, relying instead on wood, other solid biomass, kerosene or coal as their primary cooking fuel[2]. Moreover, the unsustainable harvesting of wood and solid biomass also contributes to forest and environmental degradation: reducing the resulting adverse of ecological and health consequences will have to involve a mix of adopting renewable fuels and natural resource sustainable strategies[3].

Women and girls bear the brunt of the consequences of not having electricity or clean energy access on multiple levels: the task of collecting firewood or other fuels falls predominantly on them, wasting scarce time and effort that could be instead invested on e.g. education. Access to higher education for women has repercussions on their societies at large, as women's ability to plan their pregnancies is associated with improvements in their children's education and socio-economic success.

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[1] **IEA. 2022.** *CO2 Emissions in 2022.* Paris : IEA, 2022 - Link

[2] **IEA, 2022.** *SDG7: Data and Projections.* - Link

[3] **Daka, Ephraim. 2023.** Adopting Clean Technologies to Climate Change Adaptation Strategies in Africa: a Systematic Literature Review. *Environmental Management.* 2023, 71 - Link

YOUR CHALLENGE

What can your company do (alone or in collaboration with other companies) to ensure that the energy transition also contributes to the development of underprivileged communities and the improvement of women's conditions? Identify an area (geographical or other) in which your solution could have the biggest impact. Be specific on whether your solution addresses the needs of a rural or urban community, or perhaps both. Work on a solution (product, service or other) that your company can deliver, build the business case, and prove that it will work, with impact!

TACKLING THE GENDER PAY GAP

Megatrend: Demographic Changes
Sustainability Challenge(s): Gender Equality (**SDG 5**)

Demographic and social change is transforming the labor market. While population growth is slowing in the Netherlands, a billion people will be added worldwide by 2025. Population growth is shifting from Europe and East Asia to Africa and India. In the Netherlands and many other affluent countries, women and older workers will make up an increasing share of a tightening labor market. Successful companies will be able to address and empower this talent and deploy it optimally in the organization[1]. How can we address the unequal distribution of income, experience, power, ambition and capacity, in a labor market that is clearly transforming, and where different groups have different needs?

A great example of disparate distribution is the gender pay gap, which continues to persist. Women earned $0.82 for every dollar men made in 2022, regardless of the job industry, type or even years of experience[2]. At the same time, research shows that when women join an industry in large numbers, pay goes down[3]. March 14th, 2023, marked how far into the year women had to work to make what white men were paid in 2022 alone. In affluent countries, lost income over the course of a career can add up to over a million dollars. Among all workers – including those who worked part-time or part of year because of COVID-19 – the gender pay gap is a shocking 23%[4]. Working to reduce this gap in the coming years would be a significant win towards Sustainable Development Goal 5: to 'achieve gender equality and empower all women and girls. Solving the gender pay gap is about more than overcoming the loss of a single paycheck. The loss of a woman's income for families can impact their ability to provide basic necessities and food (SDG 2), their ability to invest in savings or other property, as well as higher education (SDG 4) or health (SDG 3). Closing the pay gap would not just be a win for women and families. If women were paid fairly, it is estimated that we could cut the poverty rate in half and inject over $500 billion into the economy, tying to SDG 1 (No Poverty) and SDG 8 (Decent Work and Economic Growth).

In your brainstorming, consider that a reduction of the gender pay gap would clearly drive progress against a broad-ranging set of the global Sustainable Development Goals. And we need your help to drastically accelerate our progress in this space, as according to the World Economic Forum, the global gender pay gap is estimated to take well over 100 years to close on our current trajectory[5]!

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[1] PwC: https://www.pwc.nl/nl/themas/megatrends/demografie.html
[2] Forbes, The Time to Close the Gender Pay Gap is Now, January 2023. https://www.forbes.com/sites/forbestechcouncil/2023/01/30/the-time-to-close-the-gender-pay-gap-is-now-how-you-can-join-the-fight/?sh=a6b3c0e5244e
[3] Miller, "As Women Take Over." https://leanin.org/equal-pay-data-about-the-gender-pay-gap
[4] Jessica Mason, National Partnership for Women and Families, personal communication, September 2022.
[5] Forbes, The Time To Close The Gender Pay Gap is Now, January 2023. https://www.forbes.com/sites/forbestechcouncil/2023/01/30/the-time-to-close-the-gender-pay-gap-is-now-how-you-can-join-the-fight/?sh=a6b3c0e5244e

YOUR CHALLENGE

What can your company do (alone or in collaboration with other companies or organizations) in order to significantly accelerate our global progress to close the gender pay gap and make a positive impact on gender equality (SDG 5)? Think of concrete actions, ease of development and implementation, immediate and long-term sustainable results. You are encouraged to brainstorm on existing synergies which might benefit the progress towards multiple SDGs at once, as called out in the case, or others that you find relevant. Work on a solution (product, service or other) that your company could deliver, build the business case, and prove that it will work with impact!

NO ONE WILL BE LEFT BEHIND

Megatrend: Demographic Changes
Sustainability Challenge(s): No Poverty (SDG 1), Decent Work and Economic Growth (SDG 8) &
Reduced Inequalities (SDG 10)

In recent decades, the issue of growing inequality has become a prominent concern in many countries. When measured in relative terms, global inequality has been decreasing. However, in absolute terms it has been increasing[1]. The COVID-19 pandemic has exacerbated this issue and highlighted the urgent need for action. Prior to the pandemic, various forms of inequality, such as vertical inequalities between the rich and poor and horizontal inequalities between and within different societal groups, including gender-based inequalities, were on the rise or remained stubbornly high in many countries.

High levels of inequality have adverse social, economic, and political consequences. In practice, high inequality means that millions of people are unable to meet their needs or those of their families, save for retirement or enjoy protection when they fall sick. It means that access to labor market opportunities is unfairly divided among men and women, the old and the young, indigenous peoples, migrants, people with disabilities and other groups. It means that jobs around the world are segmented by level of reward and by level of social and employment protection. Recent literature has demonstrated how these and other inequalities can have harmful effects on the pace and sustainability of economic growth and may result in environmental degradation, slow down efforts to reduce poverty, erode social cohesion and increase the risk of social unrest or political instability[2].

To combat inequality and promote inclusive growth, the United Nations 2030 Agenda for Sustainable Development is central to international efforts. The agenda pledges to leave no one behind and calls for sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all[3]. The business community can play an important role in achieving this ambition. While there are many initiatives already in place, there is a lot of work to be done still – and robust action is needed to reverse trends of increasing inequalities.

> **What can your company do** (alone or in collaboration with other companies or organizations) to contribute to sustainable employment and the reduction of inequalities? Define an area (geographically or other) where your company can contribute to the goal of sustainable employment, make sure you analyze what are the biggest obstacles and opportunities, develop a robust solution that has potential to scale, build the business case and prove that it will work!

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[1] https://www.wider.unu.edu/publication/global-inequality-rising-or-falling
[2] https://www.ilo.org/ilc/ILCSessions/109/reports/reports-to-the-conference/WCMS_792123/lang--en/index.htm
[3] The United Nations System Shared Framework for Action, United Nations, New York, 2017 - https://digitallibrary.un.org/record/1628748

WHERE TECHNOLOGY MEETS NET ZERO

Megatrend: Technological Change
Sustainability Challenge(s): Industry, Innovation and Infrastructure (**SDG 9**) &
Climate Action (**SDG 13**)

Technology has always been an important factor to support transitions and change in the world and also bring prosperity. But in recent years it has become clear that technology advancements are required on a very large and global scale to make an even further impact. As the world started to realize that a treaty like the Paris Agreement[1] was required to limit global warming to 1.5 degrees, also the emphasis on technology and the breakthroughs that technology could bring started to shift.

Most countries have communicated (ambitious) goals to achieve net zero emissions. Many corporations as well have embraced a net zero emissions goal by a certain date. Technology in its broadest sense can and will be used to enable and facilitate the energy transition, to make the world less carbon intense and achieve net zero emissions. Technological innovation continues at breathtaking speed. A host of new technologies – across areas as diverse as artificial intelligence (AI), robotics, energy storage, DNA sequencing, blockchain technology, and materials sciences – are approaching tipping points over the next five to ten years, when dropping costs unleash demand across sectors and geographies, which will encourage even more innovation[2].

For true technological breakthroughs, the conventional approach to technology development and implementation may no longer work. Traditionally, companies would invest large sums of money to get the competitive advantage and stay ahead of competition, but in the current and future context, more and more people realize that one company or organization alone cannot deliver the most transformational solutions by themselves[3]. New and different forms of partnerships arise which will enable the acceleration of technological breakthroughs, leading to new, impactful solutions.

The energy transition will be key to achieving net zero emissions. However, it will take many decades to achieve a global transition to renewable energy[4], see for example the time it takes to develop and implement energy sources like Green Hydrogen coming from wind and solar. Having high aspirations and ambitions is key to success though, both for companies and governments.
Companies and governments need to keep up the pace if we want to achieve the ambitious targets. While some steps may need more time to complete, what are shorter term solutions? Reducing or even eliminating greenhouse gas emissions and waste are two of the most impactful actions companies can take in the shorter term.

[1] European Commission Paris 2050 Treaty - https://climate.ec.europa.eu/eu-action/international-action-climate-change/climate-negotiations/paris-agreement_en
[2] PwC Megatrends Report 2022 - https://www.pwc.com/gx/en/issues/assets/pdf/pwc-megatrends-october-2022.pdf
[3] United nations UN Climate Change Partnerships - https://unfccc.int/about-us/un-climate-change-partnerships
[4] https://www.scientificamerican.com/article/a-global-transition-to-renewable-energy-will-take-many-decades/

What can your company do to make use of technological breakthroughs to accelerate the global goal of net zero emissions? What action is required and what forms of cooperation need to be established to enable faster accomplishment of the climate goals through technology? You are encouraged to really think outside the box and take some of the above-mentioned observations into account. Work on a solution (product, service or other) that your company could deliver through a partnership with other companies or organizations, build the business case and prove that it will work, with impact!

BRIDGING THE DIVIDE

Megatrend: Technological Change
Sustainability Challenge(s): Quality Education (**SDG 4**),
Decent Work and Economic Growth (**SDG 8**) & Reduced Inequalities (**SDG 10**)

The rapid growth and adoption of Generative AI tools (AI tools that create content/products) such as OpenAI's ChapGPT, has the potential to transform many aspects of modern society, from education and healthcare to business and government. However, it also presents a unique set of challenges, particularly in developing countries where access to these technologies is limited, exacerbating existing inequalities. The digital divide is a term that refers to the gap between demographics and regions that have access to modern information and communications technology, and those that don't or have restricted access[1].

Generative AI tools can further increase the digital divide, and will have potential negative impacts on developing countries when it comes to *access to technology* and *democratization of know-how*.

Access to technology – Most generative AI tools are only available online. This can increase existing inequality between rich and poor countries by disproportionately benefiting those with better access to the internet and education. For example, a 2022 report by the International Telecommunication Union (ITU)[2], showed that 1/3 of the global population remains totally offline, with a majority of these people living in developing countries. The situation is more pronounced in Sub-Saharan Africa where, according to a 2023 World Bank report[3], only 22% of population has access to the internet.

Democratization of know-how – While Generative AI tools have the potential to democratize know-how by making expert-level knowledge accessible to a wider audience, developing countries may struggle to take advantage of this due to limited internet access. For example, many people in developing countries may lack the skills or access to technology necessary to use these tools effectively, such as digital literacy or language proficiency.

> **What can your company do,** alone or with partners, to address the potential exacerbation of inequalities by technological breakthroughs? How can you make (among others) generative AI tools more accessible to people in developing countries, considering the barriers to internet access, lower smart device ownership rates, and low digital literacy? Which strategies can you implement to ensure that these tools are used to promote greater equity and reduce inequality between rich and poor countries? How will you tailor or adapt to specific needs and challenges faced by people in developing countries, ensuring that they are able to effectively benefit from the democratization

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[1] https://www.techtarget.com/whatis/definition/digital-divide
[2] 2022 ITU Report - https://www.itu.int/itu-d/reports/statistics/2022/11/24/ff22-internet-use/
[3] 2023 World Bank Report - https://www.worldbank.org/en/region/afr/publication/digital-africa

of know-how? Work on a solution (product, service or other) that your company could deliver, alone or through a partnership with other companies or organizations, build the business case and prove that it will work, with impact!

CORPORATE SUSTAINABILITY DUE DILIGENCE IN A GLOBALIZED ECONOMY

Megatrend: Shifting Global Economic Power
Sustainability Challenge(s): Responsible Consumption and Production (**SDG 12**)

In a shifting global economic landscape, endogenous and exogenous risks, as well as acute shocks and chronic vulnerabilities can harm economic resilience. Strengthening the resilience of global supply chains, improving the international rulebook to make sure global markets are more predictable and reliable, and, addressing the challenges stemming from the transformation of our economies will help build resilience. Addressing these, alongside heightened ambitious efforts to tackle climate change and social inequalities, is essential to improve economic resilience but also to rebuild trust in governance structures, institutions and evidence itself[1].

Corporate sustainability due diligence aims to foster sustainable and responsible corporate behavior throughout global value chains. Companies play a key role in building a sustainable economy and society, and are increasingly held responsible for it. They will be required by the European Union and individual European member states to identify and - where necessary - prevent, end or mitigate adverse impacts of their activities on human rights, such as child labor and exploitation of workers, and on the environment, for example pollution and biodiversity loss[2].

Due diligence is essential for sustainable consumption and production patterns and therefore at the heart of SDG12. It makes sure that words are followed by actions and progress on social and climate related issues is reported in a transparent manner. One of the pioneers on this principle was the fairtrade label 'Max Havelaar', founded in 1988. It ensures a fair price and fair treatment of farmers in the coffee sector[3]. Another well-known example is Patagonia, who is using a 4-Fold Approach to Supply Chain Decisions to comply with the committed Supplier Workplace Code of Conduct[4].

The globalization of value chains has made it complex, however, to identify and - where necessary - prevent, end or mitigate adverse impacts of activities on human rights and the environment. How can companies effectively map their supply chains and make sure that the supplier of their supplier complies with their corporate standards and legal due diligence obligations?

What can your company do to (help) identify and prevent, end or mitigate adverse impacts of (business) activities on human rights and the environment in the entire supply chain, including third suppliers. Strive to do this in an efficient and responsible manner. New technologies nowadays may make it easier to track the supply chain compared to the time when fairtrade label 'Max Havelaar' was

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[1] OECD Report Fostering Economic Resilience in a World of Open and Integrated Markets, 2021 - Link
[2] European Commission, 2022 - Proposal for a Directive of the European Parliament and the Council on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937. Please note that at the time of writing, the proposal is still in negotiation between the three EU institutions.
[3] Fair Trade, 2023 - History of Max Havelaar and Fair Trade
[4] Patagonia, 2023 - The Patagonia 4-Fold Approach to Supply Chain Decisions

launched – which new opportunities does this bring? You are encouraged to use existing or develop new (digital) tools to map supply chains, identify compliance risks, and measure progress. Work on a solution (product, service or other) that your company could deliver, alone or in collaboration with other organizations, build the business case, and prove that it will work, with impact!