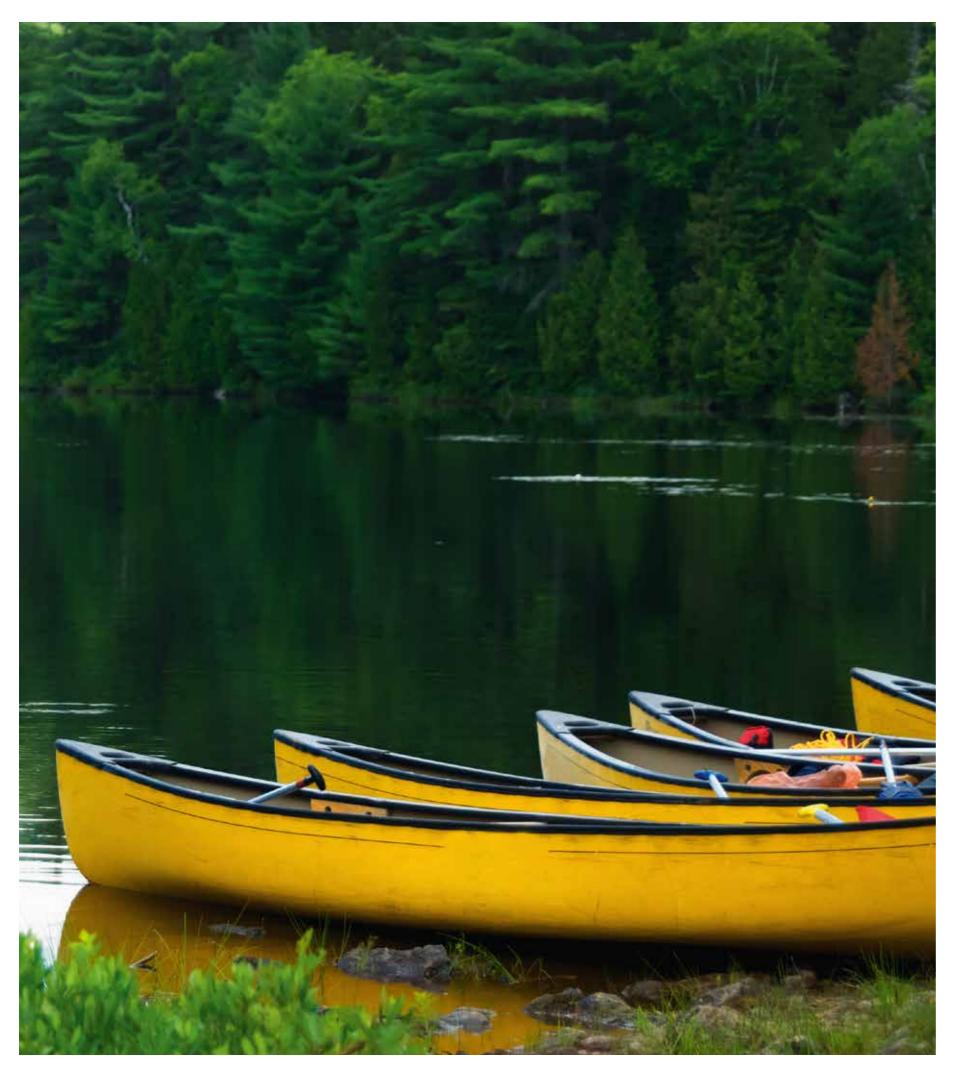
Thematic Compass

Group Investment Strategy 7 Themes for the future of investing





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Macrotrends Focus

What are we expecting going forward?

We are increasingly convinced that a valuable investment strategy should combine a traditional selection of assets with an approach that takes into consideration long-term "real life" structural changes.

Despite the events of the last two years, there are key trends, or key themes, which are either emerging or which have been exacerbated by the pandemic or geopolitical tensions. In particular, there are seven macrotrends that we believe are paramount in our investment choices.

The first macrotrend outlined by UniCredit Investment Strategy team focuses on the **new "Higher for longer" era** emerging through a combination of structurally higher inflation (and interest rates) than in the 2010-2020 decade, an increase in commodity prices, and a hawkish stance from central banks – or rather, monetary policy normalisation.

The second macrotrend, **technological innovation**, deals with the development of technologies in past decades (digitalisation and robotics above all), introducing the new key element of artificial intelligence (AI) and the Metaverse.

The **geopolitical context** sees the transition from a multipolar to a new bipolar world order. The geopolitical balance of power is re-sorting, and the world appears increasingly fragmented economically. The tensions between the US and China, the Covid-19 pandemic, and the Ukraine war have exposed key weaknesses in the principles of the international division of labour and have disrupted global supply chains. In the last few decades, supply chains have globalised with manufacturing offshored. The disruption from the pandemic and geopolitics could bring some capacity back onshore, particularly with the conflict in Ukraine exacerbating supply chain disruption and making companies and governments even more focused on resilience, which could potentially accelerate near-shoring tendencies.

Additionally, we see growing pressures for **equality** and an increasing attention on **climate change**, two trends closely linked to a new sensitivity to environmental, social and governance (ESG) issues. In this sense, the integration of digital, green and traditional infrastructure into the so called **"Infrastructure 2.0"** is acting as a powerful booster for public and private investment by providing for smart cities and creating new ways of living and working.

Another deep change emerging is through the growing awareness of **healthy lifestyles**, which is primarily associated with a better work-life balance, higher life expectancy, and changing consumer needs.



C Higher for longer

We see the phase of low inflation, low interest rates and low volatility in financial markets of the socalled "lower for longer" scenario transitioning into a new "higher for longer" scenario, which suggests structurally higher interest rates and inflation than in the 2010-2020 decade, more expansionary fiscal policy and higher market volatility.

Factors such as higher supply constraints, labour shortages, fiscal stimulus, as well as the green transition and emerging deglobalisation are likely to contribute to inflation settling at higher levels over the next few years than in the past.

Since the global financial crisis, TINA ("There Is No Alternative") has been an important support for equities - the major Western central banks kept the

RATES

key interest rate at an extremely low level for years, which, with low inflation, meant that yields in the overall bond market were also extremely low by historical standards.

Equities, on the other hand, were more attractive (especially compared to fixed income) for a long time, and investors accordingly had little choice but to turn to the equity market in search of yield.

With inflation on the rise, the Fed, first and foremost, has been raising interest rates at a record pace and investors are faced with TARA ("There Are Reasonable Alternatives"). Bonds look increasingly attractive thanks to the unprecedented series of rate hikes and the sharp rise in bond yields.

KEY NUMBERS

The turn of the major Western central banks towards an accelerated exit from the expansive expansionary monetary policy has led to a significant rise in bond yields. The latter are competitive again.

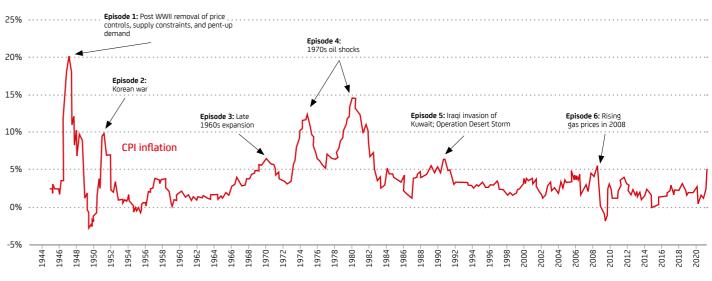


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The ECB raised its key interest rates by 25 basis points in early May and increased the deposit rate to 3.25%, signalling that it "still has a way to go". This makes another 25 basis point move in June very likely and leaves the door open for further hikes. The decision to slow the pace of rate hikes was based mainly on evidence from the latest Bank Lending Survey (BLS), which points to an acceleration in the transmission of monetary policy.

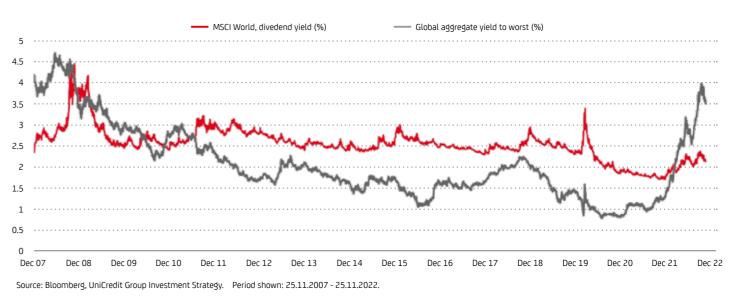
POST WORLD WAR 2 INFLATION

Percentage change, year-over-year



Source: Federal Reserve Economic Data (FRED), Haver Analytics, CEA Calculations, UniCredit Group Investment Strategy

FROM TINA (THERE ARE NO ALTERNATIVES) TO TARA (THERE ARE NO REASONABLE ALTERNATIVES)







In early May, the Fed raised the target range for the policy rate by 25 basis points to 5-5.25% and notably dropped its forecasts for further rate hikes. The baseline assumption is that it will suspend rate hikes in June unless incoming data surprise materially. The Fed Chairman Powell stated that despite the cooling of the economy and the tightening of credit conditions, the FOMC expects that it will take some time for inflation to come down and therefore does not expect any rate cuts this year.



KEY NUMBERS



The metaverse has a potential \$8.3 trillion total consumer expenditure in the U.S. depending on the level of disruption.



EU is to invest \$ 10.9 bn (2021-2027) in digital transformation, including AI, supercomputing, cybersecurity and digital skills. Plan of Biden's administration include doubling the federal Research & Development spending to USD 300 billion over 4 years. China has announced an investment of \$ 1.4 trillion by 2025 in developing AI software and installing 5G networks.

THE DEVELOPMENT OF THE GAMING INDUSTRY

The row size is proportional to the turnover over the years in bln/\$ GAMEBOY MOBIL F Web 3.0 will also use machine learning, which is a branch of AI that uses data and algorithms to imitate how humans learn, gradually improving its accuracy. These capabilities will enable computers to produce faster and more relevant results in a host of areas like drug development and new materials, as opposed to merely targeted advertising, which forms the bulk of current efforts. The concept of the "Metaverse" has received renewed attention. By essentially making the internet a virtual twin of the physical world, this digital do-over could enable novel ways of working, buying things, learning, and socialising. generates mo than \$1 billion i cade sales in th ARCADE 2013 Grand Theft Auto V earns \$ 800 million in its first day 2017 Nintend releases th tch, a hybri m (NES) a MICRO THEMES #02 1991 1983-198 °°¢ SOFTWARIZATION/ SMART E-COMMERCE SEMICONDUCTORS METAVERSE 2020 1970 1980 2000 MANUFACTURING CYBERSECURITY CRUCIALITY Source: Pelham Smithers https://www.visualcapitalist.com/wp-content/uploads/2020/11/history-of-gaming-by-revenue-share-full-size.html, UniCredit Group Investment Strategy.

Technological Innovation

New technologies include a variety of aspects such as digitalisation, artificial intelligence (AI), robotics, smart cities, and blockchain. Compared to the innovations of the past decades, this trend now adds a new essential element: machine intelligence.

Web 3.0 represents the next iteration of the evolution of the internet and could potentially be as disruptive and represent as big a paradigm shift as Web 2.0 did. Web 3.0 is built upon the core concepts of decentralisation (storage in multiple locations simultaneously), trustless (i.e. the network will allow participants to interact directly without going through a trusted intermediary) and permissionless (meaning that anyone can participate without authorisation from a governing body).



Semiconductors enable nearly every industry, reflected by global sales of over 440 \$ bn in 2020 alone. The U.S. semiconductor industry is substantial, directly contributing 246.4 \$ bn to U.S. GDP and directly employing over 277,000 workers in 2020. China has spent about 150 \$ bn since 2014 propping up its industry and plans to spend bn more in the future. The Chinese share of global manufacturing is projected to reach 24% by 2030, which would make it the world leader.



Non-fungible tokens (NFTs) currently have a market cap of \$41 billion.





Following the Russian invasion of Ukraine, the megatrend Geopolitics focuses on the transition from a multipolar to a new bipolar world order. The geopolitical balance of power is re-sorting, and the world appears increasingly fragmented economically. This has implications for global economic interdependencies.

China's share of the global economy is increasing, while the economic importance of Europe is declining. Not least due to the rise of China, global trade has grown remarkably in the last two centuries and has fundamentally changed the world economy. Today, about a quarter of total world production is exported. However, this growth trend seems to have ended for the time being. The tensions between the US and China, the Covid-19 pandemic, and the Ukraine war have exposed key weaknesses in the principles of the international division of labour and have disrupted global supply chains. With a view to increase the security of supply, re-shoring or near-shoring is increasingly coming into focus – and many companies now want to bring production back from Asia.

Greater global economic fragmentation is likely to bring slower global growth and higher inflation, which in turn should lead to higher interest rates compared to the 2010-2020 decade in developed countries (see also Macro Theme #1: Higher for Longer) – and a stronger US dollar, to the detriment of emerging markets.

KEY NUMBERS



80% of sectors experienced supply chain disruption during the pandemic, prompting threequarters to widen their re-shoring plans.

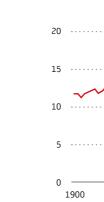


According to McKinsey, starting from 2025, 25% of world exports could be affected by the phenomenon of reshoring, i.e., the re-location of productive activities previously transferred abroad. This is worth \$4.5 billion.



Forward-thinking supply chain managers are exploring using predictive analytics as a part of supply chain digitization. As a result, the Global Human Augmentation Market is expected to reach \$341 billion by 2026.

SHARE OF TRADE IN GLOBAL GDP MUCH HIGHER THAN IN THE 1930S, BUT TREND DECLINING



Source: World Bank, OECD, Our World in Data, UniCredit Group Investment Strategy.

RELEVANT FACTORS FOR DE-GLOBALISATION





The future of supply chains", October 2021, European Business Review, UniCredit Group Investment Strategy



China accounts for 35% of global manufacturing output, and its factories generate more real manufacturing value added - \$3.9 trillion in 2019 - than the U.S., Germany, South Korea, and the U.K. combined.



The US dollar has by far the most important role in global finance, as over 59% of global reserves and more than 60% of international debt is denominated in US dollars. Emerging Markets debt denominated in US dollars amounts to 4,300 billion.





Equality

When it comes to the trend towards greater equality, income inequality has increased over the past few decades, especially in developed countries. However, the individual industrial nations differ considerably in some cases. For example, income inequality in the US has risen more sharply than in Europe.

Another generation of women will have to wait for gender parity, according to the World Economic Forum's Global Gender Gap Report 2022. At the current rate of progress, it will take 132 years to reach full parity. This represents a slight four-year improvement compared to the 2021 estimate.

MICRO THEMES #04 INCLUSION / EDUCATION GENDER EOUALITY

Progress towards gender parity is stalling in several large economies and industries. This is partly due to women being more frequently employed in sectors hardest hit by lockdowns, combined with the additional pressures of providing care at home.

The UN 2030 Agenda for Sustainable Development aims to achieve gender equality, gender equity and empowerment for all women and girls (Sustainable Development Goal 5, SDG 5). There is broad consensus among experts that economies are more resilient and productive when they reduce gender inequalities and support women's equal participation in all spheres of life. Gender parity has a positive impact on GDP per capita in the EU, according to the European Institute for Gender Equality (EIGE). By 2050, improving gender equality would increase GDP per capita in the EU by 6.1% to 9.6%, equivalent to EUR1.95-3.15 billion. It would also create up to 10.5 million additional jobs.

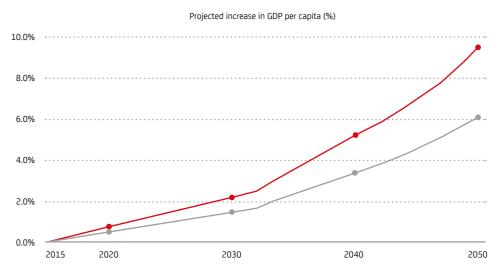
KEY NUMBERS

Equality also means education: from 2011 to <u>.</u> 2021, the number of learners reached by massive open online courses increased from 300,000 to 220 million. According to a McKinsey research, between 2012 and 2019 the number of hybrid and distance-only students at traditional universities increased by 36%, while the circumstances of the COVID-19 pandemic in 2020 rapidly accelerated that growth by an additional 92 percent.

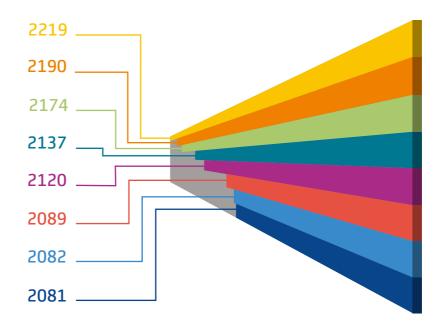


The gender pay gap remains substantial, with women's wages in America standing at 83.4% of men's earnings, according to the US Bureau of Labor Statistics.

MORE GENDER EQUALITY WOULD HAVE A POSITIVE IMPACT ON GDP DEVELOPMENT PER CAPITA IN THE EU



GENDER GAP ACROSS WORLD REGIONS





In the heart of Europe, within Germany, a man's wealth is on average 45% higher to that of a woman, in France, 15% more, and in Italy, 18%.

This generation of students now risks losing \$17 trillion in lifetime earnings in present value, or about 14 percent of today's global GDP, as a result of COVID-19 pandemic-related school closures, according to a report recently published by the World Bank, UNESCO, and UNICEF.

Fast progress: reduce the gender gap in computer science by 5-14 %, reduce the gender gap in engineering by 9-12%, reduce the gender gap in participation rates by 0-20% by 2030, reduce the gender wage gap by 0-14% by 2030 and increase the fertility rate by 0-8% by 2030. Slow progress: reduce the gender gap in computer science by 2-14%, reduce the gender gap in engineering by 4-12%, reduce the gender gap in labour force participation rates by 0-13% by 2030, reduce the gender wage gap by 0-5% by 2030 and increase the fertility rate by 0-5% by 2030. Source: EIGE, UniCredit Group Investment Strategy

Slow progress

South Asia 197 vears

Fast progress

East Asia and the Pacific 168 years

Central Asia 152 years

Middle East and North Africa 115 years

Sub-Saharan Africa 98 vears

Latin America and the Caribbean 67 vears

Europe 60 years

North America 59 years



Climate Change

The increase in global warming poses enormous challenges for major economies. To limit the 1.5°C rise in the global temperature from pre-industrial levels, we must reduce current annual greenhouse gas emissions of around 50 billion tons to zero by 2050.

Massive public and private sector investment is therefore needed to meet the recent COP26 agreements and the Paris Climate Agreement.

Europe plays a key role in the implementation of global climate targets. This is not only because Europe contributes significantly to global CO_2 emissions, and therefore a reduction of CO_2 emissions in this region is imperative, but also because Europe should take a pioneering role in the production and implementation

of green technologies due to its industrial competence and innovative capacity. Therefore, as part of the European Green Deal, all 27 EU member states have committed to making Europe the first climate-neutral continent by 2050.

The war in Ukraine has made the fight against climate change even more challenging. A significant part of the European response to the Russian war of aggression in Ukraine has been to accelerate targets for new renewable energy installations (REPowerEU). The latter are seen as a way to address each element of the so-called energy trilemma: security of supply (by reducing dependency on Russian gas), affordability (renewables for power generation are becoming cheaper) and decarbonisation.



KEY NUMBERS

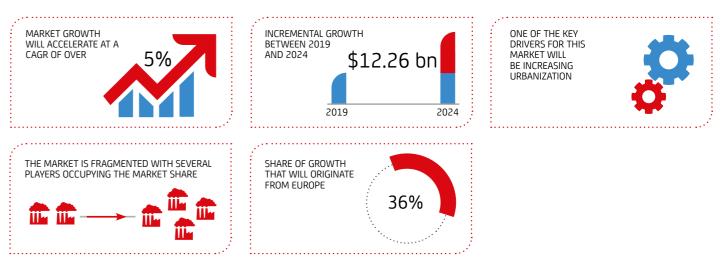
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Emerging markets and developing economies now account for more than two-thirds of global CO₂ emissions, while emissions in advanced economies are in a structural decline, despite an anticipated 4% rebound in 2021.

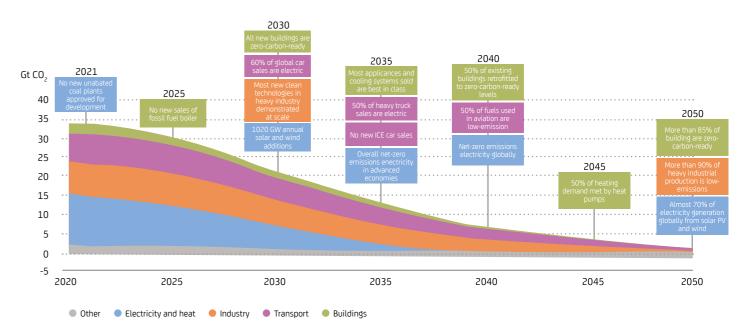
A new report by the energy think tank Ember shows that the EU's green energy transition is already making a significant difference. Solar and wind power generated a record fifth of EU electricity (22%), for the first time overtaking fossil gas (20%), and remaining above coal power (16%), according to the European Electricity Review 2023.

GLOBAL WASTE TO ENERGY MARKET 2020-2024



Source: Global Waste to Energy Market 2020-2024 (Graphic: Business Wire) https://www.businesswire.com/news/home/20200305005945/en/Global-Waste-to-Energy-Market-2020-2024-Evolving-Opportunitieswith-Babcock-Wilcox-Enterprises-Inc.-and-China-Everbright-International-Ltd.-Technavio UniCredit Group Investment Strategy.

NET ZERO TRANSITION TACTIC



Source: World Economic Forum, https://www.weforum.org/agenda/2022/01/surprising-net-zero-transition-approaches-innovations-davos-agenda/, May 2022. UniCredit Group Investment Strategy.



According to the World Bank, the Blue Economy is the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem.

The global water and wastewater treatment market had a value of 263 bn USD in 2020 and is projected to reach nearly 500 bn USD in 2029. The water and wastewater treatment equipment market size was valued at 61.6 billion U.S. dollars in 2020 and is expected to reach 84 billion dollars by 2028.



Infrastructure 2.0

The pandemic painfully exposed the urgent need for high quality, reliable, sustainable and resilient infrastructure, which is one of the goals of the UN 2030 Agenda to build. Economies with a diversified industrial sector and strong infrastructure (e.g., transport, internet connectivity and utility services) were less affected by the pandemic and recovered faster from its consequences, according to UN's "The Sustainable Development Goals Report 2022" issued in July 2022.

Today, over 60% of the world's population lives in cities, which continue to grow at an unprecedented pace. In many cases, however, the expansion of urban infrastructure is lagging this growth. Innovative solutions are needed to make living together in conurbations, but also in rural areas, more efficient.

The smart city is a vision of urban space where connected devices and sensors increase efficiency, resilience and safety based on data analysis and intelligent control. Thanks to an exponentially growing Internet of Things, powerful mobile and broadband networks and advances in machine learning or Artificial Intelligence. The development of smart grids offers the opportunity to increase the efficiency of power generation and transmission, improve resilience to disruptions and improve the integration of new energy sources such as wind power.

KEY NUMBERS

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According to the City in Motion Index (CIMI), which is an international index that measures the level of smartness of cities around the world. London ranked first among European and global smart cities in 2020, ahead of New York, Paris and Tokyo.

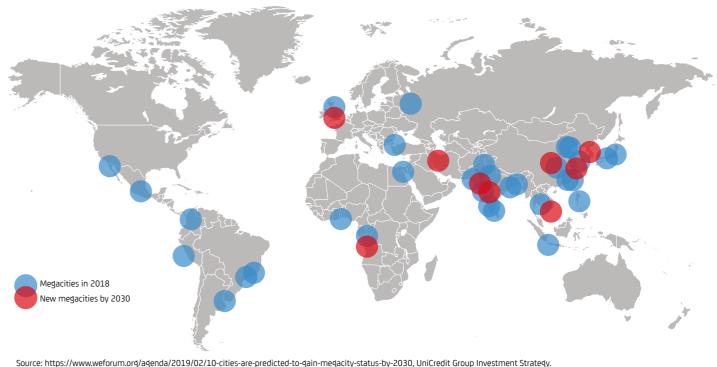


London is considered one of the most digital cities, so much so that in order to encourage the digitization of the city, the "London Office for Data Analytics" and the figure of the Chief Digital Officer were established a few years ago.



Reykjavik is characterized by three aspects of excellence: energy efficiency, based on a production of renewable energy equal to 70% of the total; cutting-edge public transport, thanks also

MEGACITIES OF THE WORLD IN 2018 AND 2030



MICRO THEMES #06 Î GLOBAL FUTURE SMART LOGISTICS CITIES MOBILITY

to the use of an app that allows greater usability and efficiency of the bus service and a system that provides for the active participation of citizens in the choices and life of the city.



In Europe, from 2035, internal combustion engines will no longer be produced. In the field of freight transport, the sale of new internal combustion commercial vans (ICE) will also end in 2035 and the sale of new heavy goods vehicles from 2040.



The transport sector emits 30% of total CO₂ in Europe, of which 72% is attributable to road transport alone. Heavy commercial vehicles account for 26%, while light ones account for 12%.



溄 Healthy lifestyle

Another societal trend with huge implications is the growing awareness of healthy lifestyles. According to a study by Silvan et al. excluding the three risk factors of not smoking, normal weight, and low blood pressure extended the life expectancy of study participants by an average of six years compared to those participants who had all three risk factors.

Life expectancy has increased in all OECD countries over the past 50 years, but progress has slowed over the last decade. Furthermore, the COVID-19 pandemic led to life expectancy falling in most OECD countries in 2020. Even though the pandemic has slowed down the increase in life expectancy, the upward trend - supported by vaccination campaigns and better treatments for COVID-19 - is expected to remain intact, mainly due to the high interest in living a healthy lifestyle.

Higher national income is generally associated with greater longevity, particularly at lower income levels. Life expectancy is also, on average, longer in countries that invest more in health systems - although this relationship tends to be less pronounced in countries with the highest health spending per capita

An increasingly older population in the industrialised nations, which also have healthier lifestyles, will not only relieve the burden on health policy, but will also permanently change the way older people consume and work. Sectors that specialise in this area will likely have a higher growth potential in the long term.

KEY NUMBERS



For young women in the US, it is estimated that a sustained change from a typical Western diet to an optimal diet starting in their 20s would increase the life expectancy of more than a decade.

Singapore and Japan, where about 25% of the population is over 65, are already responding to this demographic change with dedicated private



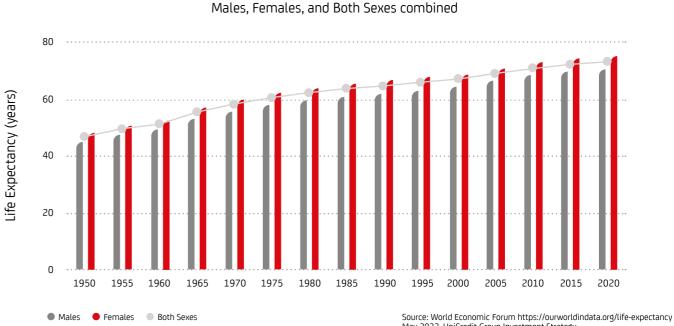
and public policies; With healthier lifestyles, 80% of cardiovascular

diseases and 30% of cancers can be avoided.



Source: World Economic Forum, UniCredit Group Investment Strategy.

LIFE EXPECTANCY IN THE WORLD FROM 1955 TO PRESENT

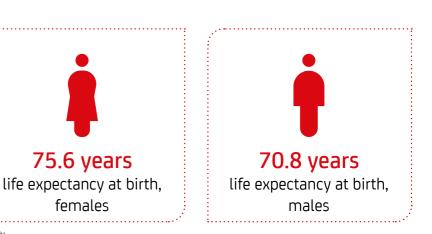


MICRO THEMES #06





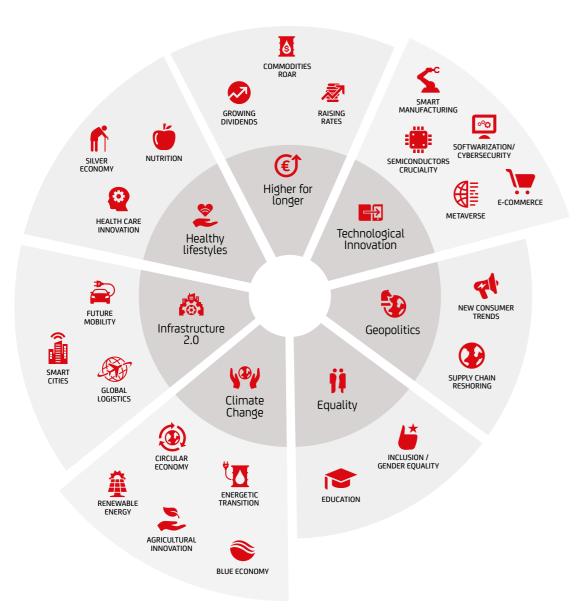
According to the International Food Information Council, 54% of all consumers and 63% of those over 50 worry more about the healthiness of their food and drink choices in 2020 than in 2010: healthiness is the most important driver, even more than taste and price.



May 2022, UniCredit Group Investment Strategy.



Overview of the single themes



DESCRIPTION OF SINGLE THEMES/TRENDS



MICRO THEMES



RAISING RATES The U-turn of central banks in Europe towards a speedy stop of loose monetary policy has led to an increase in bond return:



COMMODITIES ROAR

Commodities tend to overperform in the final stages of the economic cycle as they are used as protection against inflation risk



SOFTWARIZATION/CYBERSECURITY Internet of Things (IoT) is rapidly changing the service demand: suppliers need to implement new solutions or modify existing ones: software, the virtual world and the cloud are just some of the key factors influencing the change.



METAVERSE The next version of the Internet could be a much more virtual rich and engaging experience, making it a clone of the real world. This digital phenomenon could allow a new way of working, influencing how we buy goods, how we learn, and how we socialise with each other.



E-COMMERCE The pandemic accelerated the structural growing trend favoring online over «brick & mortar» shopping, benefitting companies across several different sectors.



SUPPLY CHAIN RESHORING

Governments and companies are increasingly importing back production lines from abroad to become more resilient. This is particularly happening in the United States, in the United Kingdom, in Europe and in some Asian countries.



EDUCATION

Alternative forms of education (i.e. distance learning) will become the new standard in the light of the high cost of traditional education.



AGRICULTURAL INNOVATION Demographics and the need to reduce pollution and preserve water require major enhancements in crop yields though better machinery and more effective ways to raise and cure livery



RENEWABLE ENERGY

Renewable energy is fast becoming a favourite. A powerful combination of favorable trends and demand trends is helping solar and wind to compete on par with conventional sources and win



ENERGETIC TRANSITION

In the coming decades, historical levels of development will be required for the energy supply mix from fossil fuels to renewable energy, and thus the targets set in the Paris Agreement.



FUTURE MOBILITY By 2030, mobility innovation could radically transform everything from power systems to the use of public space, while simultaneously introducing a new city dynamism.



SMART CITIES

Environment monitoring, parking, safety & security, street lighting, waste management. The benefits of implementing smart cities are valued at \$ 20 trillion globally by 2026.



NUTRITION

With more people emerging from poverty in emerging markets and higher health awareness in developed regions, nutrition is set to display a solid pace of growth in the coming years.



SILVER ECONOMY

Population ageing is affecting not only the Western countries but will soon become a problem even for China. Healthcare spending must be more targeted and cost efficient.

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2. Investments that offer high returns can undergo significant price fluctuations following any downgrading of creditworthiness. In the event of bankruptcy of the issuer, the investor may lose the entire capital. High volatility investments can be subject to sudden and significant decreases in value, being able to generate significant losses at the time of sale up to the entire capital invested.

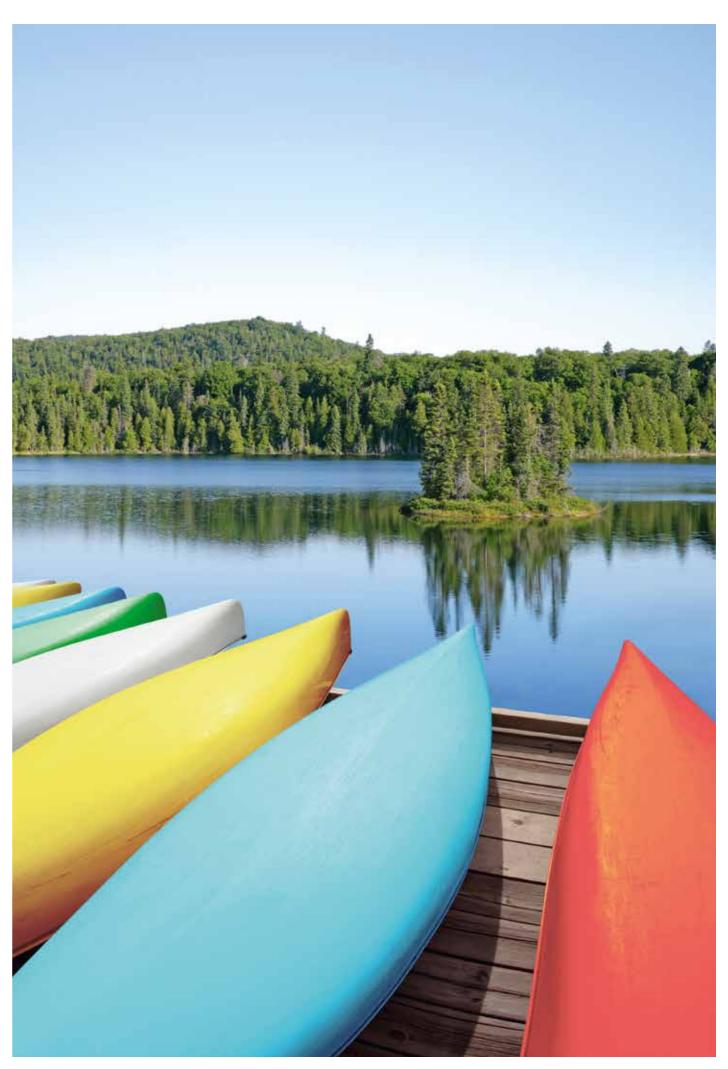
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