

ESG Viewpoint

Artificial Intelligence, Automation
and the Future of Work

March 2021

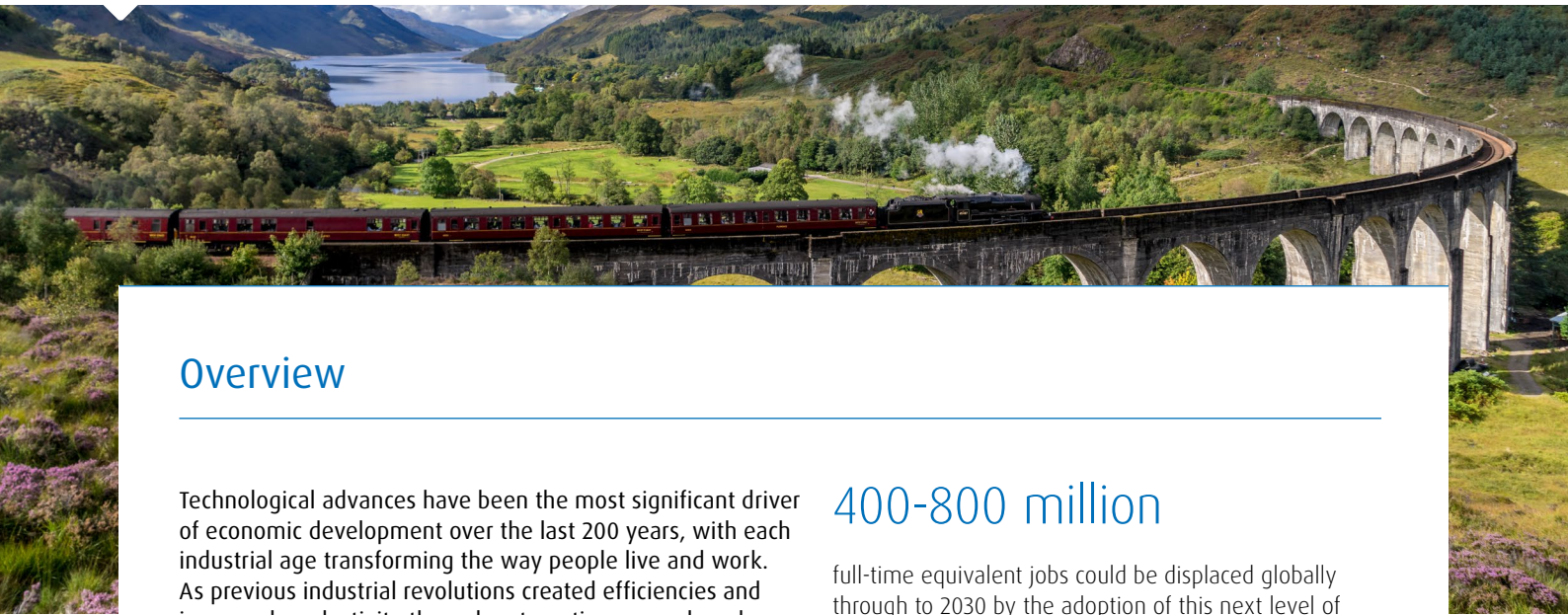


The robots are coming! What should companies do?

- ▶ The use of artificial intelligence (A.I.) to automate decisions and tasks previously performed by humans could have an exponential impact on improving efficiencies, driving economic growth and solving many of society's problems today.
- ▶ But the depth and scale of labour displacement from A.I. automation could be much greater than previous industrial revolutions.
- ▶ If mishandled, widespread unemployment and growing social inequality could result.
- ▶ Through an effective human capital management strategy, companies should look to re-skill their workforce to lower costs, retain talent and minimise workforce disruption.



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Overview

Technological advances have been the most significant driver of economic development over the last 200 years, with each industrial age transforming the way people live and work. As previous industrial revolutions created efficiencies and increased productivity through automating manual work, the labour market dramatically shifted as entire categories of jobs became irrelevant alongside the new opportunities being created. In 1910, 31% of the American workforce was in farming, compared to less than 1% today, despite output having vastly increased since then. Today we stand amid the 'Fourth Industrial Revolution', largely driven by technologies such as high-speed mobile internet, big data analytics, cloud technology and automation using A.I.

A.I. has the potential to be the most disruptive, promising to exponentially improve long-term efficiency through the automation of traditionally human processes involving observing, understanding and making decisions.



By 2025, the time spent on current tasks at work by humans and machines will be equal.

World Economic Forum, Future of Work, 2020

400-800 million

full-time equivalent jobs could be displaced globally through to 2030 by the adoption of this next level of automation¹.

67%

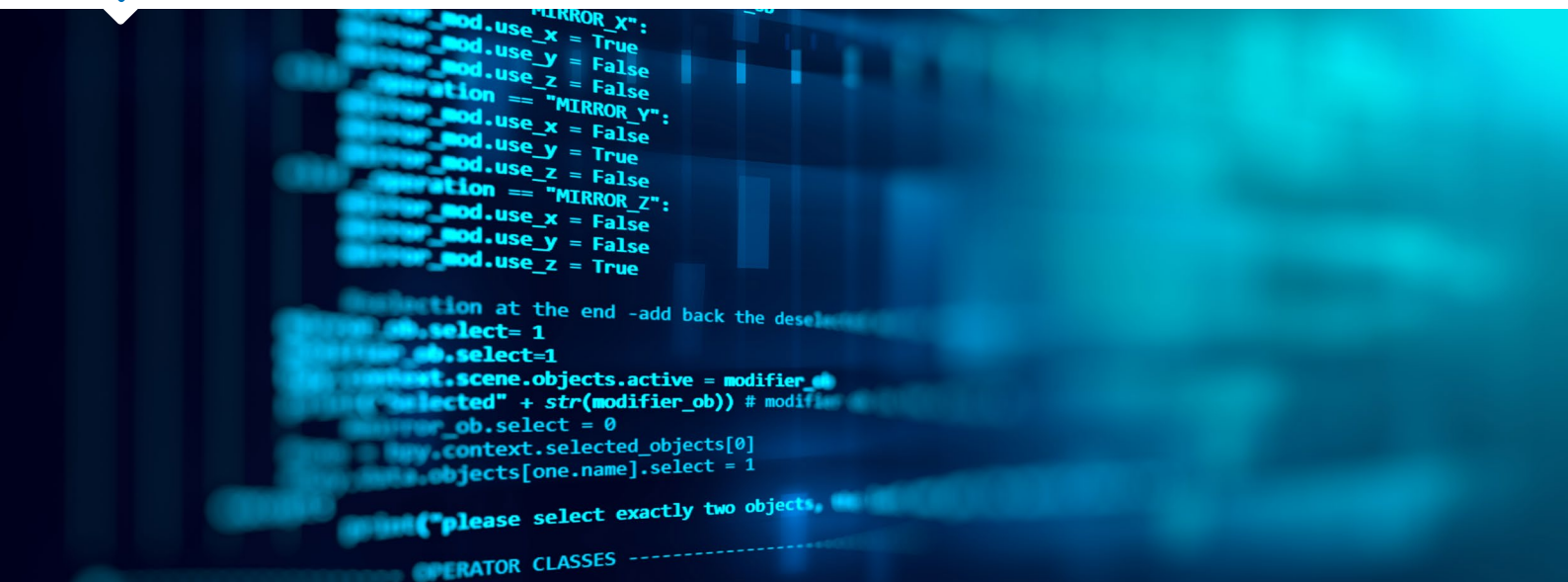
of executives at companies recently surveyed said that they had accelerated their rollout of automation since the outbreak of the COVID-19 pandemic², as companies try to reduce workplace infections by minimising human contact and keep operating costs low.

Such a rapid transformation poses both risks and opportunities for companies and society. Society needs these efficiencies gains in order to grow sustainably, particularly in economies with aging populations. But there is the risk of increasing significant social inequality and hollowing out the labour market, as highly skilled specialist jobs that complement the new technologies grow, while low-skilled and low-paying jobs not suitable for automating remain, and everything in between is made obsolete.

Interested in learning more? Keep on scrolling or click the quick links.

¹ [A Future That Works: Automation, Employment, and Productivity](#), McKinsey Global Institute, 2017

² [What 800 executives envision for the postpandemic workforce](#), McKinsey Global Institute, 2020



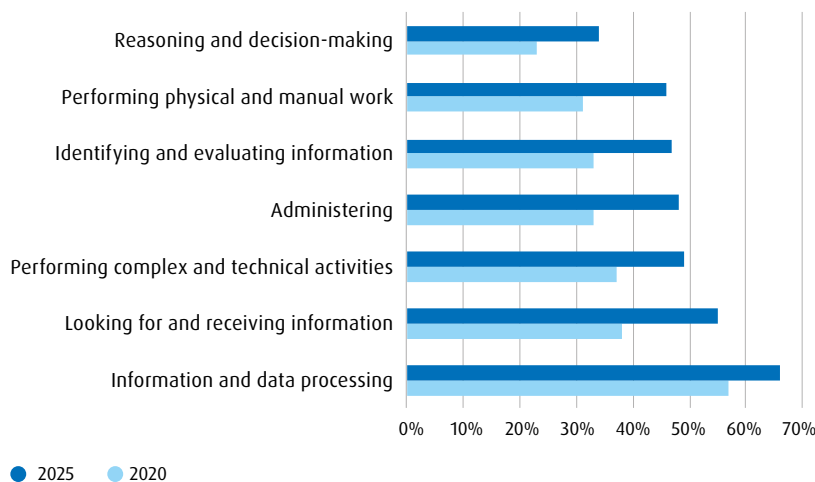
What is A.I. and what can it do?

At the highest level, A.I. is a set of complex algorithms that enables computers to ‘think’ through and perform a cognitive or perceptual task in the same way that humans do.

Through a process of machine learning, these algorithms are designed to adapt to unfamiliar situations and carry over ‘skills’ learnt from experience elsewhere which are then adapted and applied to the task at hand.

In order to get an idea of what sort of functions can be performed by A.I., we can look at the tasks already automated, and where there is expected to be growth:

Share of Tasks performed by machines vs humans, 2020 and 2025 (expected)



Source: [Future of Jobs Survey 2020](#), World Economic Forum

Case study: JP Morgan Chase & Co

JP Morgan Chase & Co, the largest US bank, reported that it took their lawyers and loan officers a total of 360,000 hours a year to manually review credit agreement documents. To reduce this time, they developed Contract Intelligence (COIN), which uses machine learning to identify and categorise repeated clauses based on location and wordings in contracts, checking for errors and indexing information for future use. Not only has this reduced the time to review a document to seconds, but the bank concluded that COIN has greater accuracy than the manual human method.



How may A.I. disrupt the labour market?

A common theme amongst the tasks that are predicted to be automated is that A.I. is useful for doing assignments that are repetitive in nature, involve perceiving information, identifying patterns and responding with a particular action.

In practice it is rare that an individual's entire role is automated in this way, but rather a proportion of their duties. Although this can make that individual more productive, as they can spend more time doing arguably

more valuable work, this also reduces the number of people across a team needed to fulfil a specific level of workload, meaning that headcounts can be reduced.

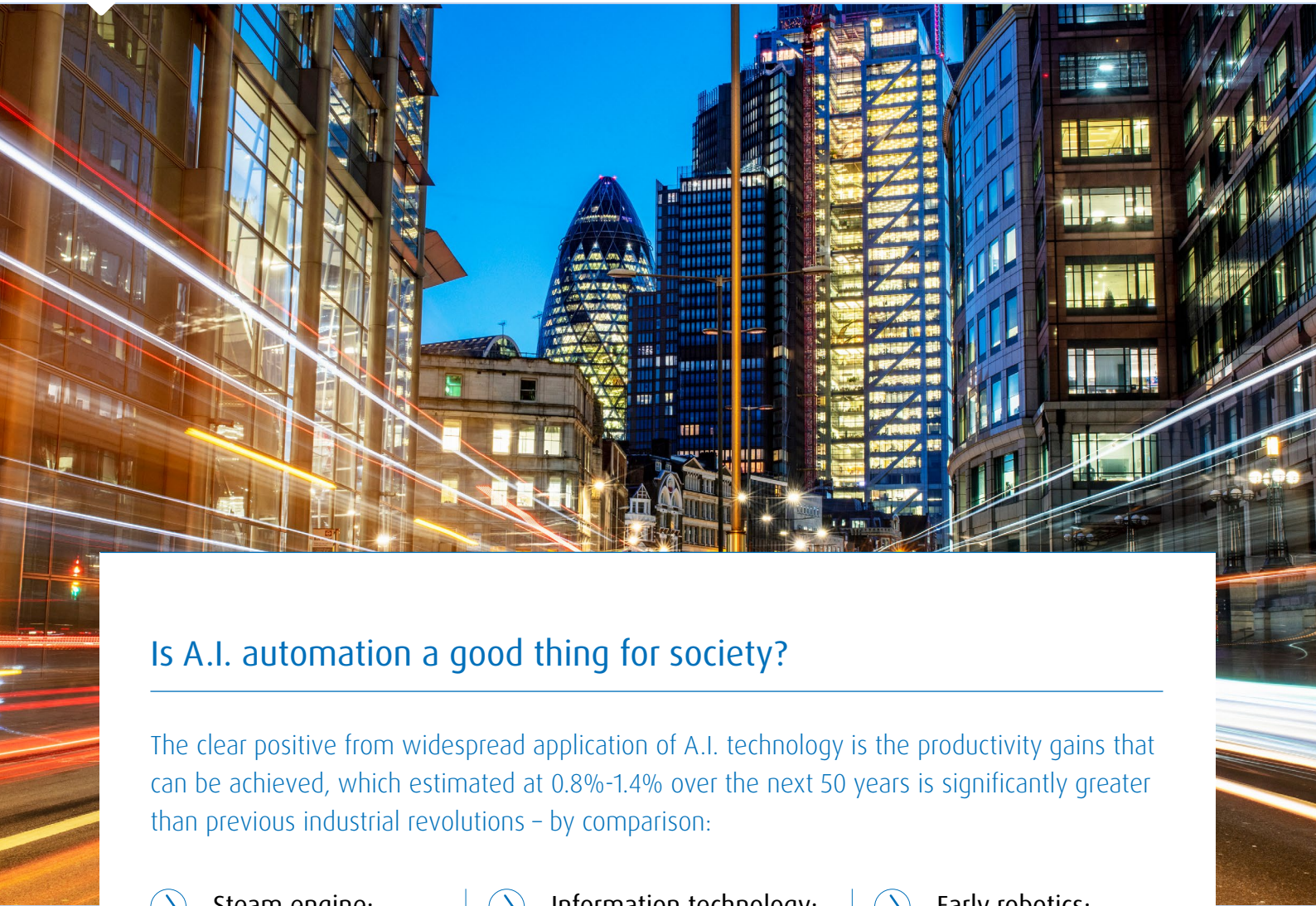
Top 10 job roles in increasing and decreasing demand across industries

∧	Increasing Demand	∨	Decreasing Demand
1	Data Analysts and Scientists	1	Data Entry Clerks
2	A.I. and Machine Learning Specialists	2	Administrative and Executive Secretaries
3	Big Data Specialists	3	Accounting and Bookkeepers
4	Digital Marketing and Strategy	4	Accountants and Auditors
5	Process Automation Specialists	5	Assembly and Factory Workers
6	Business Development Professionals	6	Business Administration Managers
7	Digital Transform Specialists	7	Customer Service Workers
8	Information Security Analysts	8	Operations Managers
9	Software and App Developers	9	Mechanics and Machinery Repairers
10	Internet of Things Specialists	10	Stock-keeping Clerks

Source: [Future of Jobs Survey 2020](#), World Economic Forum

Looking at how these changes impact on specific types of work, unsurprisingly the most growth resides with those jobs closely linked to the proliferation of the technologies associated closely with the Fourth Industrial Revolution. It is worth noting that these roles are all high-skill, less visible and fewer in number. Conversely those jobs most in decline are those undergoing significant automation, with the majority in the top 10 being "white-collar" jobs based in the service industries.

Another factor that affects the level of automation adoption is where company workforces are geographically based and the attributes of the local labour market. If labour is relatively expensive, then automation is more likely as the cost-savings are greater, and if labour is scarce then the technology investment reduces the risks of production shortfalls. However, where labour is cheap, flexible and plentiful, then the return on investment from automating those roles is lower and therefore less likely.



Is A.I. automation a good thing for society?

The clear positive from widespread application of A.I. technology is the productivity gains that can be achieved, which estimated at 0.8%-1.4% over the next 50 years is significantly greater than previous industrial revolutions – by comparison:

<p>➤ Steam engine: 0.3%</p>	<p>➤ Information technology: 0.6%</p>	<p>➤ Early robotics: 0.4%³</p>
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Against a long-term backdrop of lacklustre productivity growth, and as economies look to rebuild and recover from the pandemic, such a boost would be overall beneficial to society, as economic growth increases overall employment. For this reason, 'technological upgrading' is specifically included in the UN Sustainable Development Goals (SDGs):



Target 8.2: Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors.

³ [Harnessing automation for a future that works](#), McKinsey Global Institute, 2017

Aside from improving economic productivity, A.I. automation can also enable companies to advance many of the other UN SDGs, such as improving the efficiency of drug development research or automatic routine clerical work in hospitals, which contributes to the targets under Goal 3: Good Health & Well-Being. A.I. can also be used to create a more dynamic and adaptable energy conservation programmes, optimising existing processes and logistics, contributing to targets under Goal 12: Responsible Consumption & Production.

Finally, it could be argued that A.I. will, as with previous industrial revolutions, improve the overall quality and value of work with menial tasks that are part of people's roles being automated. Just as we look back in time to when farm workers used to toil in the fields and manually reap the harvest, we may soon think something similar about manual clerical work or other back-office functions.



Is A.I. automation a bad thing for society?

Conversely, these benefits cannot be taken out of context from the potential harm that such widespread disruption could cause if mismanaged. In the absence of proactive efforts to the contrary, it is likely that inequalities that have already been exaggerated through the pandemic will be increased further still as a result of A.I. automation.

Although it is typical with industrial revolutions that a significant number of workers are displaced as their jobs are made obsolete, this is normally counterbalanced somewhat by the creation of new 'jobs of tomorrow', as well as increasing overall economic growth and therefore employment. What is different this time around is the rapid pace of change



A.I. is good at describing the world as it is today with all of its biases, but it does not know how the world should be.

Joanne Chen, Partner, Foundation Capital

exaggerated by the pandemic and the high skill ceiling of this newly created work, which could move circumstances much quicker than workers can adapt to.

Another area worth acknowledging is that A.I. technology is not a neutral technology in how it is applied. The technology itself is far from perfect and has been proven to be prone to bias, due to a combination of a lack of diversity in the technology community that has built it and relying upon machine learning that has learnt from past and current patterns of institutional injustice. When applied in real world situations without efforts to combat innate bias, it can lead to discrimination and injustice on grounds of gender, class or ethnicity. In addition, A.I. applications such as facial recognition can be used by oppressive regimes to further enhance their ability to limit individual's freedom and proliferate human rights abuses. We aim to conduct further research and engagement on the issues around the ethics of A.I.

What should companies do about A.I.?

Although governments and policy makers have a central role in ensuring a smooth transition in the labour market, companies themselves also should consider how they manage the impacts on their workforce on integrating A.I. technology into their business.

Individuals in the workplace will need to engage more comprehensively with technology as part of their everyday activities and acquire new skills that will be in demand in the new automation age, meaning that employees need re-skilling or need to be replaced in order to be relevant to the company's operations.

To navigate this area companies need to:

- **Have an A.I. deployment strategy and understand future skill needs** – employees can only be effectively re-trained if the business knows the skills will be needed
- **Use and report human capital metrics throughout the business** – companies need to understand their existing human capital, such as the demographics of their workforce, their current sentiment with the company and where existing skills are, before it can be re-shaped⁴
- **Adopt a culture of lifelong learning and encourage participation** – Employees must define their value at a company not by their job title or the tasks they undertake but rather the skills that they offer, which is then reflected in performance evaluations and employee pay
- **Ensure that the application of A.I. is responsible** – Formal oversight governance should be in place, A.I. algorithms must be transparent, understood and accountable and active efforts must be made to minimise bias
- **Build training capabilities and partnerships** – Properly re-skilling a workforce is not cheap and needs to be embraced as an investment that can be capitalised on for years to come and be actively encouraged in order to maximise re-skill participation.

Companies need to make decisions in this area today in order to not lag behind for the next decade or so. Mishandling this transition will not only create greater inequality, undoing much

Case study: AT&T

Ten years ago, US communications and media company AT&T assessed what skills it would need to succeed in the telecommunications landscape, as it moved away from a mainly fixed-line hardware to a new mobile- and software-centric world. It concluded that out of its 250,000 employees, 100,000 of them had jobs that would probably not be relevant within a decade. In response they launched their "Future Ready" programme which offered re-skilling to these workers, at an estimated cost of \$1 billion, through a web-based multi-year collaboration with online and offline universities. Courses were taught on cloud-based computing, coding, data science, and other technical capabilities, reinforced by a culture that each employee must be the "CEO of their own career" – encouraging continued learning and development. This has not made the company immune to making significant layoffs recently, as lacklustre demand for legacy products and the pandemic took hold in 2020, but given the scale of the change in industry this could have been a much greater number.

of the work companies have been doing to combat this over the last few years, but it will also impact their long-term financial performance as they might fail to close the future skills gap with their existing pool of talent. A.I. technology promises an exciting future of possibilities in a post-pandemic world but companies, policy makers and wider society need to think proactively about its deployment in order to ensure it is truly sustainable.

⁴ We encourage companies to disclose such metrics via the [Workforce Disclosure Initiative](#)

Responsible Investment – a glossary of terms

Its wide-ranging nature means that responsible investment involves a host of associated language and jargon. Here we explain some of the most commonly used terms.



Active ownership

Discharging responsibilities as investors and owners in a company through engagement and voting to influence the management of environmental, social and governance (ESG) issues.



Stewardship

The responsible allocation, management and oversight of capital to create long-term value for clients and beneficiaries leading to sustainable benefits for the economy, the environment and society.*



Environmental, Social and Governance (ESG)

A framework that breaks the broad concept of sustainability down into these 3 key issues.



Engagement

Entering dialogue with companies after investment, to support and encourage positive change in the management of key ESG issues.



Proxy voting

Exercising the right to vote on resolutions at company shareholder meetings. It compliments engagement as a key tool for influencing change.



Sustainable Development Goals (SDGs)

The 17 goals set by the United Nations in 2015 are a global framework for achieving a better and more sustainable future. They address the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity and peace and justice. The UN is targeting completion of all 17 interconnecting goals by 2030.

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* https://www.frc.org.uk/getattachment/5aae591d-d9d3-4cf4-814a-d14e156a1d87/Stewardship_Code_Final2.pdf, p. 4. The Investment Association reserves the right to review its alignment with the FRC definition at any time.

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