



GDPR: Tough EU data protection law comes into effect applying fully to all businesses operating in EU

The General Data Protection Regulation — better known as GDPR — that gives citizens of the European Union (EU) more rights to control their personal information came into effect from Friday, the 25th of May.

With the new regulations in force, companies working in the EU — or any association or club — must now get express consent to collect personal information or face hefty fines.

At a time when several technology companies have come under the scanner for misuse of personal data of users, the new EU legislation, passed in April 2016, is seen as an attempt by the European lawmakers to restrict the powers of the technology companies.

The new regulations give the users of tech companies the right to see what information about them are being collected and also have them deleted if they wish so.

It also makes mandatory for companies to tell all affected users about any data breach, and inform the overseeing authority within 72 hours.

To ensure that companies in the EU comply with the GDPR rules, EU member states must set up supervisory authorities which will work in a coordinated manner.

Major technology companies have said that they are ready to comply with the GDPR rules.

Microsoft this week announced that it will extend the core rights guaranteed under the new regulations to all of its customers worldwide.

Originally adopted in April 2016, the rules of GDPR will now apply fully to all businesses or else fees will be levied against those that don't comply.

GDPR replaces the 1995 EU Data Protection Directive, and it means all organisations operating in the EU have to abide by its new rules. Importantly, organisations outside the EU, like US-based companies that target consumers in the EU, monitor EU citizens or offer goods or services to EU consumers (even if for free), also have to comply.

The GDPR also applies to "controllers" and "processors". What this means, in summary, is that those currently subject to EU data protection laws will almost certainly be subject to the GDPR and processors (traditionally not subject) will also have significantly more legal liability under the GDPR than was the case under the prior Directive.

Warnings and orders or fines can be imposed on firms that are breaking the new rules. The maximum ceiling for fines in the most serious infringement cases is four percent of the company's total worldwide annual turnover.

What is it?

The General Data Protection Regulation (GDPR) comes into effect across the European Union on May 25.

It seeks to expand and update data rules that have been in place since 1995 -- long before hacks, security breaches and data leaks became a common occurrence.

The new rules give Europeans more control over their personal data. The European Commission said that a lack of trust in tech companies was the main motivation behind the new rules.

What does it mean for companies?

Any organization that holds or uses data on people inside the European Union is subject to the new rules, regardless of where it is based.

Companies that sell goods and services to people in Europe will be impacted, as well as organizations that monitor people's online behavior, for example by tracking browsing histories.

The rules mean Silicon Valley has to change some of its business practices. Facebook (FB), for example, has tens of million users in the European Union. So does Google (GOOGL).

Under the new law, companies will have to obtain an individual's consent in order to store and process personal data. Requests must be clear and written in plain language.

Organizations aren't allowed to hold data for longer than is necessary, and anyone can ask for their personal information to be deleted from a company's servers. There are only a few exceptions -- including if services cannot be provided without the data.

Firms may also have to prove they are handling data correctly -- this might mean increased monitoring and documentation. Some may have to hire data protection officers.

What does it mean for people?

Consumers can expect to see more privacy warnings and consent requests. These must be made separately, and cannot be bundled with general terms and conditions.

The rules mean that tech companies can no longer assume users want to hand over their data. Companies must now count on the opposite, and reflect that in their services and products.

For example: Rather than automatically signing a user up for a mailing list and later offering an unsubscribe option, companies now have to explicitly seek consent ahead of time. The default option when asking users if they want to subscribe must be "no."

Some brands are already asking consumers if they want to remain on email marketing lists.

Companies are also required to tell authorities about any data security breach within 72 hours of discovering it -- a rule that should eliminate big gaps between the business finding out and customers being informed.

What's the cost?

Making sure a business complies with the new rules is costly. Many large organizations have hired outside auditors and advisers to help make sure they are ready.

But the cost of breaking the rules is even higher.

European regulators can impose fines of at least €20 million (\$25 million) or up to 4% of annual global sales, which for the big tech companies could run into billions of dollars.

General Data Protection Regulation (GDPR) is the new set of rules brought-in by the European Union, empowering its citizens to have control over their personal data. The GDPR is being hailed as the biggest overhaul of data privacy laws in over 20 years. The law, which came into force on May 25, gave EU citizens new rights over how their personal data are used. GDPR provides completely new definition of personal data. As per GDPR, personal data as anything that relates to an identified or identifiable individual. This may include somebody's name, address, email address, location data or computer IP address. It keeps sensitive data, such as religious beliefs, racial or ethnic origin, sexual orientation or trade union membership, as subject to extra protections.

The law entrusts Europeans with stronger control over information about them. Now, the citizens of UN will get the right to receive clear and understandable information about who is processing their data and why, access data an organization holds about them, ask for personal data to be erased, have data corrected if it is incorrect, move data from one service provider, such as an email service or social network, to another.

As the General Data Protection Regulation (GDPR) comes into effect in the European Union countries this week, Indian enterprises with business interests in the region are working overtime to keep pace. While IT services companies, for whom Europe is the second-largest market after North America, have been preparing for long for the GDPR regime, cloud-based software service providers have taken an extra step by making their products and platforms GDPR-compliant not just for the European customers or region but for all.

Most companies in the B2B SaaS space have approached the GDPR in the same fashion so that they won't have to look at different privacy policies for different customers.

In case of large Indian IT services companies such as Tata Consultancy Services, Infosys and Tech Mahindra, most of them are already compliant with the new European data privacy law. Now, they are also ensuring that their vendors and suppliers comply with it.

India's largest IT services company, TCS, for instance, has set up a new unit to ensure compliance with various data privacy regulations including GDPR, and also has global privacy policy covering all applicable geographies and areas of operations.

It has launched enterprise-wide online training, educational tools, social media and other awareness initiatives regarding data privacy and protection as well as GDPR.

How will GDPR affect Indian companies?

The law leaves a number of companies, including those which are doing business with EU from India, affected by large. These companies will now face new rules on how they handle people's data and stiff

penalties for breaching the law. In case of a breach, GDPR foresees fines of 2 to 4 percent of a company's annual revenues or 20 million euros (\$24 million), whichever is higher.

The GDPR also applies to an Indian entity if it monitors the behavior of individuals in the EU. Going by the European Commission, the law applies to a company or entity which processes personal data as part of the activities of one of its branches established in the EU. The norm applies regardless of where the data is processed.

The GDPR also applies to a company established outside the EU offering goods/services which monitors the behavior of individuals in the EU. It doesn't matter whether the company is providing its services paid or for free.

Implication for Indian citizen

While GDPR is applicable in EU countries, it is not just the residents who will come under the purview of the new privacy laws but also millions of non-EU citizens who are working, studying or simply travelling through the region. This means that Indian passing through these regions will also be governed by GDPR even if they are still accessing domestic services.

Indian companies providing goods or services to EU citizens or residents will be obligated to comply with GDPR, including financial institutions. Indian financial service providers are not obligated to GDPR unless they are providing services to EU nationals or residents or have presence in the EU region or even service EU businesses in handling their data.

India retains fastest growing economy tag, GDP rises 7.7%

Robust performance by manufacturing, construction and service sectors and good farm output pushed the India's January-March 2018 GDP growth to a seven-quarter high of 7.7 per cent, helping it retain the fastest growing major economy tag, government data showed.

India's economic expansion at 7.7 per cent was significantly higher than China's 6.8 per cent in the January-March period.

However on yearly basis, the Indian economy grew at a four-year low of 6.7 per cent in 2017-18, down from 7.1 per cent in the previous fiscal. The previous low was recorded in 2013-14 at 6.4 per cent. "GDP at 2011-12 prices in the fourth quarter of 2017-18 registered growth rate of 7.7 per cent as against 5.6 per cent, 6.3 per cent and 7 per cent, respectively, in the first three quarters of 2017-18. Rapid growth in agriculture (4.5 per cent), manufacturing (9.1 per cent) and construction (11.5 per cent) contributed to the overall growth," the Central Statistics Office (CSO) said in its national accounts data released on 31 May.

The previous high GDP growth of 8.1 per cent was recorded in the April-June quarter of 2016-17. The GDP growth was 6.1 per cent in January-March 2016-17.

Commenting on data, finance secretary Hasmukh Adhia said, "The constant increasing trend of quarterly GDP numbers in the four quarters of 2017-18 at 5.6 per cent, 6.3 per cent, 7 per cent and 7.7 per cent indicates that the structural measures of reforms undertaken by government is now bringing rich dividends in the form of higher GDP growth rate."

The decline in the annual GDP growth has been mainly due to dip in manufacturing, agriculture and mining activities. However, construction and financial services showed some improvements. The gross value addition (GVA) for the January-March quarter expanded at 7.6 per cent from 6 per cent a year ago, data showed.

Manufacturing sector GVA grew at 9.1 per cent in fourth quarter, up from 6.1 per cent year ago. Similarly, construction sector GVA rose 11.5 per cent in the fourth quarter as compared to 3.9 per cent a year ago.

GVA growth of trade, hotels, transport and communication and services related to broadcasting grew at 6.8 per cent in the fourth quarter as compared to 5.5 per cent a year ago. Similarly, financial, real estate and professional services GVA grew at a higher rate of 5 per cent in the quarter as compared to 1 per cent a year ago.

Mining and quarrying did not perform well in January-March as GVA of the segment grew at 2.7 per cent in the fourth quarter, down from 18.8 per cent in the year-ago period.

Though the farm GVA output growth was well above satisfactory mark of 4 per cent at 4.5 per cent in fourth quarter, it was lower than 7.1 per cent a year ago.

Electricity, gas, water supply and other utility services GVA grew at 7.7 per cent in the fourth quarter as compared to 8.1 per cent a year earlier.

Real GVA (at basic constant 2011-12 prices for 2017-18) is now estimated at Rs 119.76 lakh crore, showing a growth rate of 6.5 per cent over first revised estimates of GVA for 2016-17 of Rs 112.48 lakh crore. The GVA growth was 7.1 per cent in 2016-17.

A barometer of investment, the gross fixed capital formation (GFCF) at current prices is estimated at Rs 47.79 lakh crore in 2017-18 as against Rs 43.52 lakh crore in 2016-17.

At constant (2011-12) prices, the GFCF is estimated at Rs 40.88 lakh crore in 2017-18 as against Rs 37.98 lakh crore in 2016-17.

In terms of GDP, the rates of GFCF at current and constant (2011-12) prices during 2017-18 are estimated at 28.5 per cent and 31.4 per cent, respectively, as against the corresponding rates of 28.5 per cent and 31.1 per cent, respectively, in 2016-17.

India fastest growing economy at 7.4 percent in 2018: International Monetary Fund

The IMF's Asia and Pacific Regional Economic Outlook report said that India was recovering from the effects of demonetisation and the introduction of the GST.

The International Monetary Fund (IMF) reaffirmed that India will be the fastest growing major economy in 2018, with a growth rate of 7.4 percent that rises to 7.8 percent in 2019 with medium-term prospects remaining positive.

The IMF's Asia and Pacific Regional Economic Outlook report said that India was recovering from the effects of demonetisation and the introduction of the Goods and Services Tax and "the recovery is expected to be underpinned by a rebound from transitory shocks as well as robust private consumption."

Medium-term consumer price index inflation "is forecast to remain within but closer to the upper bound of the Reserve Bank of India's inflation-targeting banda of four percent with a plus or minus two per cent change, the report said.

However, it added a note of caution: "In India, given increased inflation pressure, monetary policy should maintain a tightening bias."

It said the consumer price increase in 2017 was 3.6 percent and projected it to be five percent in 2018 and 2019.

"The current account deficit in fiscal year 2017-18 is expected to widen somewhat but should remain modest, financed by robust foreign direct investment inflows," the report said.

After India, Bangladesh is projected to be the fastest-growing economy in South Asia with growth rates of seven percent for 2018 and 2019; Sri Lanka is projected to grow at four percent in 2018 and 4.5 in 2019, and Nepal five percent in 2018 and four percent in next. (Pakistan, which is grouped with the Middle East, is not covered in the Asia report.)

Overall, the report said that Asia continues to be both the fastest-growing region in the world and the main engine of the world's economy.

The region contributes more than 60 percent of global growth and three-quarters of this comes from India and China, which is expected to grow 6.6 percent in 2018 and 6.4 percent in 2019, it said.

The report said that US President Donald Trump's fiscal stimulus is expected to support Asia's exports and investment.

The Asian region's growth rate was expected to be 5.6 percent for 2018 and 2019.

However, in the medium term the report said that "downside risks dominate" for the region and these include a tightening of global financial conditions, a shift toward protectionist policies, and an increase in geopolitical tensions.

Because of these uncertainties the IMF urged the countries in the region to follow conservative policies "aimed at building buffers and increasing resilience" and push ahead with structural reforms.

"While mobile payments are expanding sharply in such economies as Bangladesh, India, and the Philippines, on average Asia is lagging sub-Saharan Africa," the IMF said, adding that the region should take steps to ensure it is able to reap the full benefits of increasing digitalisation in the global economy

New telecom policy aims at broadband for all Indians by 2022

The 'National Digital Communications Policy 2018' aims at attracting investments of over \$100 billion in the sector and also creating 4 million new jobs by 2022.

The new policy proposes extending fixed line broadband access to 50 per cent of households with facility of service portability.

The policy suggests providing universal broadband coverage at 50 mbps to every citizen and providing 1 gbps (gigabit per second) connectivity to all gram panchayats of India by 2020 and 10 gbps by 2022.

The draft says it aims to enhance the contribution of the digital communications space to India's GDP to 8 per cent from about 6 per cent in 2017.

Besides, the draft policy includes reviewing licence fees, spectrum usage charges, and the universal service obligation fund levy, which add to the cost of telecom services, in order to enhance ease of doing business in the sector.

It proposes adopting "Optimal Pricing of Spectrum" to ensure sustainable and affordable access to digital communications.

The draft policy proposes recognising the mid-band spectrum, particularly the 3 GHz to 24 GHz range, for next-generation networks. It outlines roadmap for high in demand backhaul spectrum for transmitting signals between mobile towers in E and V band as per international best practices.

The policy, 2018 seeks to unlock the transformative power of digital communications networks — to achieve the goal of digital empowerment and well being of the people of India; and towards this end, attempts to outline a set of goals, initiatives, strategies and intended policy outcomes.

By 2022, the contribution of the Digital Communications sector to the Indian economy is expected to go up to 8 per cent of GDP from around 6 per cent in 2017.

To fulfil the information and communication needs of citizens and enterprises by establishment of a ubiquitous, resilient, secure and affordable digital communication infrastructure and services; and in the process, support India's transition to a digitally empowered economy and society.

The National Digital Communications Policy, 2018 envisages three missions, namely, Connect India, Propel India and Secure India in order to accomplish these objectives by year 2022.

Connect India aims at creating a robust digital communication infrastructure that would ensure 'Broadband for All' as a tool for socio-economic development, while ensuring service quality and environmental sustainability.

The 'Propel India' mission seeks to be an enabler for next generation technologies and services through investments, innovation and IPR generation and by harnessing the power of emerging digital technologies, including 5G, AI, IoT, Cloud and Big Data to enable provision of future ready products and services, thereby catalysing the fourth industrial revolution (Industry 4.0) by promoting investments, innovation and IPR.

The 'Secure India' mission seeks to ensure sovereignty, safety and security of digital communications and to secure the interests of citizens and safeguard the digital sovereignty of India with a focus on ensuring individual autonomy and choice, data ownership, privacy and security, while recognising data as a crucial economic resource.

The policy aims at ensuring availability of 100 Mbps broadband on demand to all key development institutions; including all educational institutions; enable fixed line broadband access to at least 50 per cent of households; achieve 'unique mobile subscriber density' of 55 by 2020 and 65 by 2022; enable deployment of public Wi-Fi hotspots reaching 5 million users by 2020 and 10 million by 2022; and ensure connectivity to all uncovered areas.

Towards this it is proposed to establish a 'National Broadband Mission (Rashtriya Broadband Abhiyan) to implement universal broadband access initiatives, which will be funded through USOF and public private partnerships.

The digital backbone would comprise of:

BharatNet that would provide 1 Gbps to Gram Panchayats upgradeable to 10 Gbps;

GramNet connecting all key rural development institutions with 10 Mbps upgradeable to 100 Mbps;

NagarNet that aims at establishing 1 million public Wi-Fi hotspots in urban areas;

JanWifi for establishing 2 million Wi-Fi hotspots in rural areas

The mission also aims at implementing a 'Fibre First Initiative' to take fibre to the home, to enterprises and to key development institutions in Tier I, II and III towns and to rural clusters by:

According telecom optic fibre cables the status of public utility;

Promoting collaboration models involving state, local bodies and private sector as necessary for provision of shared duct infrastructure in municipalities, rural areas and national highways;

Facilitating fibre-to-the-tower programme to enable fibre installation of at least 60 per cent base stations thereby accelerating migration to 4G/5G;

Leveraging existing assets of the broadcasting and power sector to improve connectivity, affordability and sustainability;

Incentivising and promoting fibre connectivity for all new developmental construction;

Making requirement for telecom installations and the associated cabling and in-building solutions mandatory in all commercial, residential and office spaces by amending National Building Code of India (NBC), through Bureau of Indian Standards (BIS);

The mission also aims at establishing a national digital grid by:

Creating a National Fibre Authority;

Establishing common service ducts and utility corridors in all new city and highway road projects, and related elements;

Creating a collaborative institutional mechanism between centre, states and local bodies for Common Rights of Way, standardisation of costs and timelines; and removal of barriers to approvals;

Facilitate development of Open Access Next Generation Networks;

Facilitate the establishment of mobile tower infrastructure by: extending incentives and exemptions for the construction of telecom towers; according accelerated Rights of Way permissions for telecom towers in government premises; promoting deployment of solar and green energy for telecom towers; improving international connectivity and achieving cost reduction of international bandwidth by facilitating setting up of International Cable Landing Stations through rationalisation of access charges and removing regulatory hurdles;

Encourage sharing of active infrastructure by enhancing the scope of infrastructure providers (IP) and promoting deployment of common sharable, passive as well as active, infrastructure;

Enabling infrastructure convergence of IT, telecom and broadcasting sectors: by amending the Indian Telegraph Act, 1885 and other relevant acts for the purpose of convergence in coordination with respective ministries; establishing a unified policy framework and spectrum management regime for broadcast and broadband technologies; and restructuring of legal, licensing and regulatory frameworks for reaping the benefits of convergence;

Creating a Broadband Readiness Index for states/ union territories to attract investments and address RoW challenges;

Encouraging investment in broadband infrastructure through fiscal incentives, including accelerated depreciation and tax incentives; and incentivising fixed line broadband;

Encouraging innovative approaches to infrastructure creation and access, including through resale and Virtual Network Operators (VNO); and

Promoting broadband connectivity through innovative and alternative technologies.

Recognising spectrum as a key natural resource for public benefit to achieve India's socio-economic goals, the policy will aim at optimising availability and utilisation by making adequate spectrum available to be equipped for the new broadband era.

India racing to outshine China as world solar power leader

India is poised to equal China as a global leader in the renewable energy transformation, a US-based research institute has said.

Half of the world's 10 largest solar parks under construction are in India, says a report by the Institute for Energy Economics and Financial Analysis (IEEFA).

India doubled solar installations to 10 GW in 2017-18 and is rapidly scaling up capacity towards achieving an ambitious and transformational 100 GW of solar by 2022, IEEFA director Tim Buckley said.

Since its big entry a decade ago, China has led the global solar energy industry. A massive manufacturing sector that has driven down costs and supportive government policies have helped it become the world's largest producer of solar energy.

Neighbour India may have come to the party a little late, but is now racing ahead in terms of big projects.

India's scheme for development of solar parks is becoming a successful model to attract foreign capital, says the report titled Solar is Driving a Global Shift in Electricity Markets.

The world's largest solar project at 2,225 megawatt (MW) is under construction at the Bhadla Industrial Solar Park in Rajasthan.

This is more than double the largest fully operational solar park in India, which is the 1,000 MW Kurnool Ultra Mega Solar Park in Andhra Pradesh.

Also on the cards is a massive 5,000 MW solar park along the Gulf of Khambhat in Gujarat.

China still has the largest solar parks. Its 1,547 MW Tengger Desert Solar Park is the world's biggest so far, but will be overtaken by Bhadla.

The year 2017 saw the commissioning of the world's largest floating solar project, Sungrow's 40 MW park in Anhui Province in China. Two 150 MW floating solar projects are due for commissioning in China in 2018.

Given land constraints, India's new policy target for 10,000 MW of floating solar nationally is a logical and commendable initiative to leverage this new innovation to enhance solar application and value proposition, said the report.

The report details some of the world's largest utility-scale, concentrated solar power, rooftop solar, floating solar, solar with battery storage projects, corporate renewable power purchase deals and utilities that lead on the renewable energy front.

Even for rooftop solar installation, India has gone big. A 19 MW system installed on an 82-acre campus of the RSSB Educational and Environmental Society in Amritsar, Punjab, is currently the world's largest

"India has pioneered the concept of the ultra mega power plant (UMPP) in a single solar industrial park. This approach has been instrumental in driving economies of scale and procuring global capital flows ... over the last two years with an immediate boon in the form of a halving of solar tariffs to a record low of Rs2.44 (per unit)," the IEEFA report said.

Bloomberg New Energy Finance reports global solar installations total 98 GW in 2017, 31 per cent more than the previous year. China installed 53 GW in 2017, over half the global total deployed in 2017.

"As major corporations sign on to such deals, they continue to look to 'green' their entire supply chains, many of which sit in emerging markets. This activity helps expand access to capital in markets, which is often a key constraint," report co-author Kashish Shah said in a statement.

India's National Electricity Plan aims to reduce thermal power from 67 per cent of capacity in 2017 to just 43 per cent by 2027.

Experts say major solar energy tenders are being floated every week in India at prices now consistently 10-20 per cent below the cost of existing domestic thermal power generation and 50 per cent below new imported coal-fired power.

In a major endorsement of India's solar mission, Tata Power this month embraced renewables as the way forward with a \$5-billion plan, like the National Thermal Power Corp.

"Banks clogged with thermal power plant bad debts won't keep lending to this stranded asset sector; painful for India, but a positive for the transition to renewables," Buckley told IANS.

The largest power plant in India, Adani's Mundra 4.6 GW import coal plant, has been turned off since February 2018, being unviable to run, along with Tata's Mundra 4 GW imported coal plant, a \$9-billion stranded asset.

India's electrification programme scores high in World Bank report

A World Bank report has given high marks for India's electrification programme, less than a week after Prime Minister Narendra Modi announced that all the villages in the country have been electrified. India is doing "extremely well" on electrification with nearly 85 per cent of the country's population having access to electricity, the World Bank has said.

Between 2010 and 2016, India has been providing electricity to an additional 30 million people each year, more than any other country, the World Bank said in its latest report released this week.

The report said nearly 85 per cent of the country's population has access to electricity.

"India is doing extremely well on electrification. We are reporting India about 85 per cent of the population has access to electricity," said Foster, lead World Bank author of the latest report on Energy Progress.

This figure, she pointed out, is higher than that of the Indian government. "That might surprise you. The government is currently reporting in low 80s," Vivien Foster, Lead Energy Economist at the World Bank said.

That may, however, be attributed to the methodology the World Bank uses. The household survey it uses counts those who are off grid as well, while the government uses figures based on official utility connection, she added.

While challenges to providing universal access to electricity, ie, covering the remaining 15 per cent of the 1.25 billion population, remains, the report said India is all set to achieve the target well before the 2030 deadline.

"In absolute terms, India is doing more on electrification than any other countries. Thirty million a year, is really an astounding performance and it stands out from the crowd," Foster said.

However, India is not the fastest country in electrification. Bangladesh and Kenya, for example are faster in electrification than India, she noted.

India, she said, is now entering final stage of electrification.

"You are already well over 80 per cent, so you're getting into the more difficult aspects of electrification: the more remote population, the harder to reach people," she explained.

However, reliability of service is an area of concern for India, she said.

"We know that in some parts of India or having the connection doesn't necessarily guarantee the energy's reliable supply. So, getting the connection obviously is very important, but India still has a long

way to continue to work on actually making that access meaningful in terms of hours of service," Foster said.

Referring to India's tremendous electrification effort, the report said it expects 250 million people gaining electricity access between now and the early 2020s, when the country reaches full access.

The report attributed the rapid growth of electricity access in India to the country's \$2.5 billion electrification programmes for reach universal electrification, the report said.

86 million workdays lost to migraine in the UK every year

The equivalent of 86 million workdays are lost to migraine each year and close to £1 billion is spent on healthcare costs associated with the condition.

It affects more than 23 per cent of adults with almost 200,000 attacks happening in the UK every day - making migraine the most common neurological reason for accident and emergency attendance.

Launched this week in the Houses of Parliament, the new report is the first to examine the economic cost of migraine in the UK since 2003, and calculates the impact migraine has on productivity levels due to 'absenteeism and presenteeism' — either being absent from work or less effective while at work.

The report, *Society's headache: The socioeconomic impact of migraine*, was produced by the Work Foundation and funded by Novartis. It calls for government to join forces with national bodies to develop a long-term strategy to improve migraine care and support for employees in the workplace.

The Work Foundation's Dr James Chandler is the lead author of the report. He said: "Migraine is the most common and disabling headache disorder which affects more than 20 per cent of adults in the UK. It tends to affect people between the ages of 15-49, so strikes at a time when people are at their most productive, impacting on their careers, family life and with it, the wider economy.

"Despite its prevalence and debilitating effects, public and professional understanding of it is generally poor and it is often badly managed by the health system. The condition is normally treatable if managed correctly, so we are calling for Government to introduce measures to improve patient care and increase understanding of the condition. Employers also have a role to play. Better working practices - promoting 'good' work - would empower people to manage their condition more effectively at work, reducing the impact on individuals' careers and significantly improving productivity."

The report also suggests there are significant additional costs that are more difficult to quantify, as sufferers can deal with difficult symptoms such as anxiety between episodes that can impact on people's relationships and quality of life. Research suggests the condition is often linked to limitations in career advancement and potential earnings.

Artificial intelligence needs to be socially responsible, says new policy report

The development of new Artificial Intelligence (AI) technology is often subject to bias, and the resulting systems can be discriminatory, meaning more should be done by policymakers to ensure its development is democratic and socially responsible.

This is according to Dr Barbara Ribeiro of Manchester Institute of Innovation Research at The University of Manchester, in *On AI and Robotics: Developing policy for the Fourth Industrial Revolution*, a new policy report on the role of AI and Robotics in society, published on recently.

Dr Ribeiro adds because investment into AI will essentially be paid for by tax-payers in the long-term, policymakers need to make sure that the benefits of such technologies are fairly distributed throughout society.

She says, "Ensuring social justice in AI development is essential. AI technologies rely on big data and the use of algorithms, which influence decision-making in public life and on matters such as social welfare, public safety and urban planning."

"In these 'data-driven' decision-making processes some social groups may be excluded, either because they lack access to devices necessary to participate or because the selected datasets do not consider the needs, preferences and interests of marginalised and disadvantaged people."

On AI and Robotics: Developing policy for the Fourth Industrial Revolution is a comprehensive report written, developed and published by Policy@Manchester with leading experts and academics from across the University.

The publication is designed to help employers, regulators and policymakers understand the potential effects of AI in areas such as industry, healthcare, research and international policy.

However, the report doesn't just focus on AI. It also looks at robotics, explaining the differences and similarities between the two separate areas of research and development (R&D) and the challenges policymakers face with each.

Professor Anna Scaife, co-director of the University's Policy@Manchester team, explains: "Although the challenges that companies and policymakers are facing with respect to AI and robotic systems are similar in many ways, these are two entirely separate technologies — something which is often misunderstood, not just by the general public, but policymakers and employers too. This is something that has to be addressed."

One particular area the report highlights where robotics can have a positive impact is in the world of hazardous working environments, such a nuclear decommissioning and clean-up.

Professor Barry Lennox, Professor of Applied Control and Head of the UOM Robotics Group, adds: "The transfer of robotics technology into industry, and in particular the nuclear industry, requires cultural and societal changes as well as technological advances.

"It is really important that regulators are aware of what robotic technology is and is not capable of doing today, as well as understanding what the technology might be capable of doing over the next -5 years."

The report also highlights the importance of big data and AI in healthcare, for example in the fight against antimicrobial resistance (AMR).

Lord Jim O'Neill, Honorary Professor of Economics at The University of Manchester and Chair of the Review on Antimicrobial Resistance explains, "An important example of this is the international effort to

limit the spread of antimicrobial resistance (AMR). The AMR Review gave 27 specific recommendations covering 10 broad areas, which became known as the '10 Commandments'.

"All 10 are necessary, and none are sufficient on their own, but if there is one that I find myself increasingly believing is a permanent game-changer, it is state of the art diagnostics. We need a 'Google for doctors' to reduce the rate of over prescription."

The versatile nature of AI and robotics is leading many experts to predict that the technologies will have a significant impact on a wide variety of fields in the coming years. Policy@Manchester hopes that the On AI and Robotics report will contribute to helping policymakers, industry stakeholders and regulators better understand the range of issues they will face as the technologies play ever greater roles in our everyday lives.

Do Indians need to worry about the rise of the robots?

While the number of robots deployed by Indian firms has seen a 200-fold increase in the 21st century, the country still has the lowest density of robots in the world, and they are mostly deployed in jobs that are difficult or dangerous for humans.

The number of robots deployed by Indian firms has seen a 200-fold increase since the turn of the 21st century. Job-seekers may find this scary till it is put in context - the total number of industrial robots in India in 2016 was 16,026, accounting for barely 0.1 per cent of India's industrial workforce.

Moreover, most of the robots are deployed in jobs which are difficult for human beings to do, says a first-of-its-kind study on the use of industrial robots in India by Sunil Mani, professor and director at the Centre for Development Studies (CDS), Thiruvananthapuram.

Mani's analysis based on the latest data from the International Federation of Robotics (IFR) and the Annual Survey of Industries (ASI) shows that the density of robots per 10,000 manufacturing workers has increased from less than 1 in 2000 to almost 10 in 2016.

The IFR defines an industrial robot as an "automatically controlled, reprogrammable, and multipurpose [machine]".

The study says India has the lowest density of robots in the world although there is some underestimation of their employment in the organised sector.

A large chunk of industrial robots deployed in the country have been in the auto industry to perform two very specific tasks — arc and spot welding — which are hazardous for workers to perform. The other task where robots are increasingly being used is that of machine tending or handling, which also involves risks for human workers. Robots performing these two tasks account for 84 per cent of industrial robots deployed in the country today.

"The use of industrial robots is concentrated in two main tasks — handling / machines tending and welding and soldering. The single-largest application or task where robots are used is welding, and within it, arc and spot welding. In fact, there is a remarkable stability in the tasks where robots are used in the late 1980s and now," the study says.

India's experience in this regard is no different from that of other countries, Mani notes. Globally, the large-scale use of industrial robots began in the 1970s in tasks related to welding, largely in the auto industry. Since then, the only other task where the use of robots has increased significantly is machine handling and tending.

The evidence so far suggests that robots are unlikely to replace all kinds of industrial workers. Rather, specific tasks within certain occupations are more likely to be automated.

The share of manufacturing sector has been rising steadily and now accounts for about two-thirds of the total operational stock of robots. Within the manufacturing industry, much of the robot installations are in four industries — automotive, electrical and electronics, metal, and chemical, rubber and plastics.

"There has been a 27 per cent increase in the number of delivered robots in 2017 compared to 2016 and on an average, it has increased by 64 per cent per annum since 2000," the study says.

However, the study sounds a note of caution. "With significant developments in artificial intelligence, robots are becoming more flexible and this may lead to automation of a number of tasks, which were previously thought to be non-automatable," it says.

While economists are still divided on how many jobs will be lost to automation in the coming years, there is fair amount of agreement that educated and skilled workers will continue to enjoy a premium even in an automated world.

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