

1. Has India's rail infrastructure been sufficiently utilised to create an integrated transportation network for agricultural produce? Comment. What are the constraints and potential on this front? Examine.

Approach:

The question given has two parts and students are expected to address each part equally. In the first part demand of the question is, has rail infrastructure been sufficiently used to create an integrated transportation network for agricultural produce both positive and negative views need to be given as the directive given is comment. In the second part students are expected to mention constraints and potential of the railway infrastructure in transporting agri produce.

Introduction:

Indian Railways is among the world's largest rail network, and its route length network is spread over 1,23,236 kms, with 13,523 passenger trains and 9,146 freight trains, plying 23 million travellers and 3 million tonnes (MT) of freight daily from 7,349 stations. India's railway network is recognised as one of the largest railway systems in the world under single management. Indian farmers incur Rs 92,651 crore per year in post-harvest losses, the primary causes of which are poor storage and transportation facilities. There are scarce transport facilities because only a small number of villages are joined by railways and pucca roads to mandies. As a result, farmers carry their produce to Mandi on either bullock carts or other such means.

Body:

Has rail infrastructure been sufficiently used-

- The movement of food grains has regularly used railways wagons and is an ongoing intervention on freight trains. Since majority of shipments are undertaken by FCI, bulkhandling is possible. To compete with roadways and to bring more idle rolling stock into use, railways also developed discounts and incentives for carriage of food grains.
- The agricultural trade, especially in case of perishable commodities, faces a perpetual shortage of time, once the produce is harvested. The agri-logistics of such produce has to resort to technologies such as precooling and cold-chain to enhance the marketable or holding life of the perishable goods because of lack of market access in the normal lifespan of the produce. On the other hand, assured connectivity to market centres is not possible until a certain economy of scale is generated from a single commercial entity.
- Indian farmers incur Rs 92,651 crore per year in post-harvest losses, the primary causes of which are poor storage and transportation facilities. Ironically, according to the high-level Dalwai committee report , an investment of Rs 89,375 crore—a figure marginally lower than the annual

post-harvest losses—is all it takes to improve the state of storage and transportation facilities for food crops.

- Since a market is the primary medium for farmers to exchange their produce for money, lack of logistics connectivity to ensure that their harvest reaches markets in time results in lowering of the farmers' ability to monetise their produce. This becomes even more critical in case of perishable fruits and vegetables.
- At the all-India level, the proportions of the produce that farmers are unable to sell in the market are 34 per cent, 44.6 per cent, and about 40 per cent for fruits, vegetables, and fruits and vegetables combined," finds the committee on Doubling of Farmers' Income. This means, every year, farmers lose around Rs 63,000 crore for not being able to sell their produces for which they have already made investments.
- Although this seems to be a good show on the state of cold storage in the country, but it should be underlined that the existing cold storage capacity is confined mostly to certain crop types and not integrated with other requirements. In fact, close to only 16 per cent of the target set for creating integrated pack-houses, reefer trucks, cold storage and ripening units has been met. This means, there is an overall gap of about 84-99 per cent in achieving the target on improving the state of storage and transportation of the farm produce. Out of these, the country is far-far behind in meeting the requirement of integrated pack-houses, reefer trucks and ripening units.

Use of rail infrastructure and initiatives in this regard -

- Budget 2020 has provided for the implementation of Kisan rails across the country with an intent to boost farmers' welfare by doubling their incomes by 2022.
- The most important among them is the robust network of Indian railways, which cuts through the remotest villages of the country and has helped small farmers get an opportunity to connect to the mainstream market and sell their agricultural produce. Second, the government has allowed a 50 percent subsidy for the transportation costs of fruits and vegetables, thereby, making it economically viable for farmers to transport their produce through the railways rather than the conventional roadways. The Kisan Rails, on an average, save up to 15 hours of travel time and cuts the transportation cost by 1,000 rupees per tonne.
- Further, no minimum price or quantity requirement is set for farmers' consignment, facilitating even the small farmers with lesser quantity of produce to reach the bigger markets. These farmers — who often could not afford the roadways and were cut off from the larger markets owing to logistical and cold storage issues — now find an alternative in the veritable cold storage on the wheels (Kisan Rails).
- Kisan Rails is a step ahead towards transforming the traditional practices of purchase and sale of agricultural produce and exploring new possibilities in agriculture. Further, on the one hand, India today stands as the world's second largest producer of fruits and vegetables; on the other, it has also been the country that wastes 16 percent of its agricultural produce owing to

factors like inadequate logistical support, lack of cold storage facilities, supply chain bottlenecks, and under-developed market channels. The monetary worth of this wastage stands at around US\$ 8.3 billion and it uses more than 230 cubic kilometers of water, which is enough to provide drinking water to 100 million people annually. The introduction of Kisan Rails has helped tremendously in reducing wastage, providing a cheaper and safer transport mode, and thereby creating a win-win situation for both the farmers and railways. The Kisan Rails, apart from directly impacting the lives and livelihoods of farmers, have also additionally helped changing smaller railway stations into major farm produce loading hubs. Kisan Rails is emerging as a profitable model for all the stakeholders involved in the process.

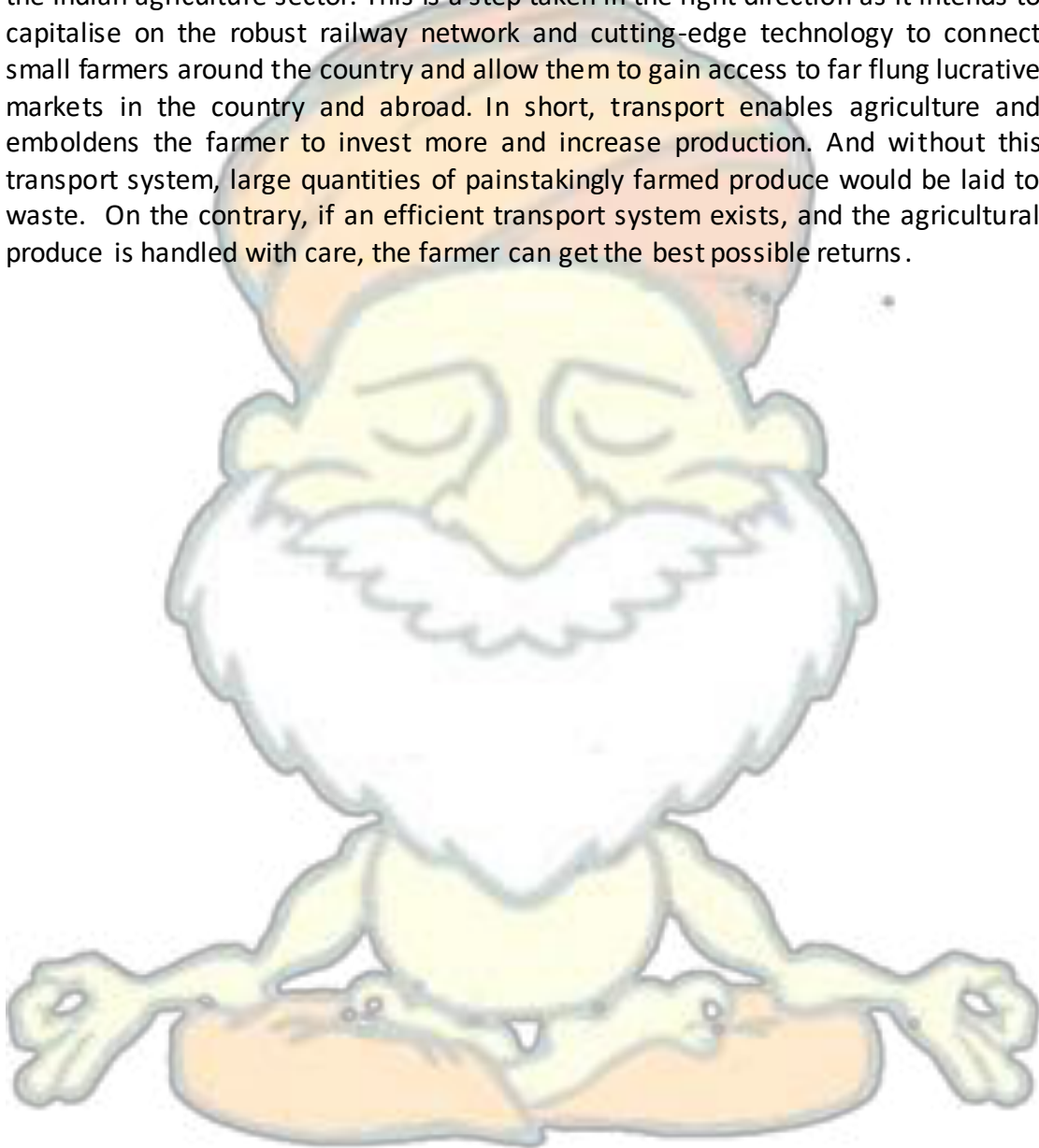
Constrints and potential-

- Lengthy exercise that farmers need to undergo if they want their produce to be transported through the Kisan Rails. The product is handled in their crates at least six times — at the farm, at the source station, while loading it to the train at the source, unloading at the source, at the destination station, and finally at the mandi, resulting in increased chances of wastage of the produce. Efforts to streamline this lengthy exercise could be an instrumental step towards bringing in more traffic for the Kisan Rails.
- Secondly, the cold storage facility in the country needs to significantly improve and more and more stations must have cold storage facilities to maximise the potential of Kisan Rails.
- Overcrowded rail infrastructure makes less apace available for allowing specialized trains to operate on regular basis thus creates another challenge of increasing dedicated agri transport services.
- Cost of rail transport also is high compared to road and other means of transport thus acts a a disincentivising factor for the farmers to opt for the rail services to transport their produce to the mandis.
- Railways can play an important role in the coming second green revolution, wherein railheads can locate the modern produce collection centres (or be linked to the same), maintain certain floating stock of containers dedicated for food cargo and to be the backbone to the Unified National Agricultural Markets. Railways not only speeds up the logistics connectivity, which is important in case of perishables, it also covers larger distances which is key to achieving improved value realisation for farmers.
- Indian Railways with its pan-India network is the optimal and preferred choice for Hortiproduce movement. Yet, this burgeoning demand is not fully tapped or planned for in full.
- Assured income from logistics service from agri-hubs. Any producer with efficient and easy access to rail transport will rarely opt for long haul roadways transportation.
- The ability to use railways to cover longer distances in shorter times, empowers farmers by allowing them to expand their market reach. While existing trade into local markets will continue, the amount that is surplus to localised demand can be connected to consumers farther away thereby

mitigating loss and increasing recovery from surplus. Otherwise the surplus produced is incurred as total waste.

Conclusion:

Kisan Rails has been among one of the several holistic steps that is directed towards supporting 80 percent of the country's small and marginal farmers and to transform the Indian agriculture sector. This is a step taken in the right direction as it intends to capitalise on the robust railway network and cutting-edge technology to connect small farmers around the country and allow them to gain access to far flung lucrative markets in the country and abroad. In short, transport enables agriculture and emboldens the farmer to invest more and increase production. And without this transport system, large quantities of painstakingly farmed produce would be laid to waste. On the contrary, if an efficient transport system exists, and the agricultural produce is handled with care, the farmer can get the best possible returns.



2. What are the key areas that require immediate reforms to improve the efficacy of agricultural marketing in India? Discuss.**Approach**

A straightforward question where in you need to discuss the key areas that require immediate reforms to improve the efficacy of agricultural marketing in India.

Introduction

Agriculture is a primary activity in India and is the largest source of employment in India, where food accounts for about half of consumer expenditures. Moving agricultural products from the farm to consumers more efficiently could result in large gains to producers, consumers, and India's overall economy, which clearly highlights the need for improving this sector.

Body

Agricultural marketing refers to process which involves moving the agricultural produce from place of origin to that of consumers. An efficient marketing system is essential for developing and also maximizing returns from agricultural production but there are many challenges in this regard, where the key areas that require immediate reforms to improve the efficacy of agricultural marketing include –

1. Movement, storage, and pricing restrictions on food commodities: The Essential Commodities Act allows central and state governments to administratively impose movement, storage, pricing, and quality restrictions on most food commodities. These restrictions are a major source of policy risk for agribusiness investment, particularly in larger scale firms that hold relatively large stocks or operate across state borders.
2. Middlemen Menace: Presence of too many middlemen result in higher cost of marketing of agriculture produce. As per a study, the share of middlemen in case of rice was 31 per cent, in case of vegetable was 29.5 per cent and in case of fruits was 46.5 per cent.
3. Agricultural marketing restrictions: State agricultural marketing laws have historically required all farm produce to be sold in government regulated markets and prohibited private investment in markets and vertical coordination or integration between agribusinesses and farmers.
4. Lack of storage facilities in markets: There is no proper storage or warehousing facilities for farmers in the villages where they can store their agriculture produce. Thus causing farmers to sell their surplus produce at very low and un-remunerative price.
5. Scale limitations on agricultural processing firms: Although most scale restrictions have been removed, agricultural marketing and processing remain dominated by small-scale firms.

6. Inadequate Transportation facilities: Poor road transportation facilities and links in rural areas affect movement of agriculture produce. Indian farmers cannot reach nearby mandis to sell their produce at a fair price.
7. Credit policies: The high cost and limited availability of credit likely restricted new investment in agriculture and agribusiness during the 1990s. Terms and availability for institutional credit have improved significantly since 2000, but a large share of farmers and agribusinesses still depend on high-cost credit from traditional moneylenders.
8. Absence of grading and standardisation as well as market information: Lack of knowledge of grading affects Indian farmers to fetch good price Indian farmers. Also, there is absence of market intelligence or information system in India. Indian farmers are not aware of the ruling prices of their produce prevailing in big markets.
9. Adulteration of Commercial Crops: Adulteration i.e., mixing of inferior produce freely with superior produce is very common. Adulteration in cash crops and food-crops has assumed tremendous proportion in India.

Measures by Government to overcome the Challenges –

- The three farm laws which were recently brought in to overcome the challenges of agro-marketing. These include: The Essential Commodities (Amendment) Act, 2020 (ECA), The Farming Produce Trade and Commerce (Promotion and Facilitation) Act, 2020 (FPTC), The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020.
- The Department of Agriculture & Cooperation formulated a Central Sector scheme for Promotion of National Agriculture Market through Agri-Tech Infrastructure Fund (ATIF) through provision of the common e-platform.
- Electronic National Agriculture Market (e-NAM) to connect all APMC mandis across states through an electronic portal, thus benefitting both farmers and consumers.
- Agriculture export policy, 2018 which aims to double agriculture exports from \$30 billion to \$ 60 billion by 2022.
- Development and Strengthening of Grading and Standardization System: Assigning 'AGMARK' to graded products which ensure good quality and also command a better price in the market.
- PM Kisan SAMPADA Yojana for creation of modern infrastructure with efficient supply chain management from farm gate to retail outlet.

Conclusion

As NITI Aayog's three year agenda focuses on reforming the agricultural market so that farmers are empowered to sell their produce to whomsoever they wish. The recent measures are taken by the government in this light will be helpful to create an efficient nation-wide market and will also ensure rise in income of farmers in turn contributing to achieve the target to double farmers income by 2022.

3. To make agriculture the growth engine for rural India, the involvement of the public sector is a must. Do you agree? Critically examine.**Approach**

Candidates are expected to write about agriculture growth in India and then critically examine about involvement of public sector to make agriculture the growth engine for rural India.

Introduction

Agriculture continues to be a prime pulse of the Indian economy and is at the core of socio-economic development of the country. It accounts for around 19 per cent of GDP and about two-thirds of the population is dependent on the sector. Indian agriculture has both public and private sector involvement.

Body

Public sector in agriculture is crucial for building necessary infrastructure and investment let us examine how public sector involvement sets a growth engine for rural economy in India.

- Public sector intervention needed in agriculture especially in rural economy to achieve the goal price stability at the time of bumper harvest or below normal production and provide a guaranteed price to producer farmers. Public sector organisations also supply food to vulnerable and poor sections at a lower price.
- The role of infrastructure is crucial for agriculture development in rural India and for taking the production dynamics to the next level. It is only through the development of infrastructure, especially at the post-harvest stage that the produce can be optimally utilized with opportunity for value addition and a fair deal for the farmers.
- To make strengthen growth of rural economy NABARD is facilitating Rs 1 lakh crore finance for funding Agriculture Infrastructure Projects at farm-gate and aggregation points like Primary Agricultural Cooperative Societies, Farmers Producer Organizations, Agriculture entrepreneurs, Startups, etc.
- Local initiative rural level for building community infrastructure, like water harvesting, canal irrigation network, huts for community market centers etc. may generate employment opportunities in this way public sector can revitalise growth engine of rural economy.
- One of the important objectives of public sector is to protect the interest of poor and marginal farmers by abolishing intermediaries through land reforms expanding institutional credit support to poor farmers etc. Credit supply will set growth for rural market economy.
- Government investment to promote agricultural research and training facilities and to percolate the fruits of such research among the rural farmers

by establishing a close linkage between research institutions and rural farmers can be beneficial.

However these central and state government initiatives and subsidies are concentrated on a few crops and still too heavily subsidised in favour of the big players therefore there is need to diversify the source of investments.

- Involvement should be encouraged from private investment in agriculture it is made either for augmenting productivity of natural resources or for undertaking such activities, which supplement income sources of farmers. Private sector investment includes investments made by private corporates and households.
- The corporate sector investment includes investment by organised corporate bodies like big private companies and unorganised entities like sugar co-operatives and milk co-operatives.
- The household sector investment comprises investment on farm equipments, machinery, irrigation, land improvement and land reclamation. With about 90 per cent share, households dominate the private investment scene. These investments enable farmers to grow existing crops more productively and intensively and take up non-conventional/high value crops.
- The public investment in agriculture has been declining and is one of the main reasons behind the declining productivity and low capital formation in the agriculture sector. With the burden on productivity-driven growth in the future, this worrisome trend needs a reversal.
- Technological innovation by Private agribusiness companies are at the forefront of heavy investment in agricultural R&D and technological innovation. Eg: Trithi Robotics uses drone technology to allow farmers to monitor crops remotely.
- Private player also lead in seed treatment, agricultural chemicals, biologicals, plant growth regulation, animal genetics and health, biofuels, machinery, irrigation, soil analysis and data-intensive precision farming tools.
- The private sector's milk processing capacity grew steadily since deregulation, and in 2012-2013 was 70 percent greater than that of cooperatives.
- Sales of the private processing sector and food services industry are growing rapidly. Performance and market shares of the formal food processing industry exceed those of the more traditional "unorganized".

Conclusion

The idea is to modernise the agriculture sector through conscious investments and bring down the ICOR and thereby allow the agriculture sector to perform well like industrial sector. Investment in agriculture, the prime mover needs to be accelerated to achieve the desired level of growth of over 4 per cent per annum and 5 trillion economy in future.

4. The government must stop depending on petrol, diesel taxes to bridge its fiscal deficit Do you agree? Substantiate your views.

Approach- Candidate is required to outline the current scenario of petrol price hikes and management of fiscal balance sheet. With a way forward answer can be concluded with alternative sources.

Introduction

Retail prices of petrol and diesel have been rising over the past several weeks. In some parts of the country, the retail selling price of petrol has crossed Rs 100 a litre. Globally, oil prices have been rising because of resurgence in demand, and an increase in the retail prices of petrol and diesel is an outcome of that.

Body

Why prices of petrol and diesel are high?

- Taxes constitute a high proportion of the retail price of petrol. When tax revenues were hit hard by the Covid-19 pandemic, the government raised the excise duty on petrol and diesel in March 2020 and again in May 2020 to garner revenues. Households did not feel the pain of the rise in excise duties because global crude oil prices had crashed.
- Despite a slump in international crude oil prices due to the pandemic, the prices of petrol and diesel did not decline. The gains were adjusted against the excise duty hike to provide a cushion to the government's tight fiscal situation.

What is the impact?

- There are two consequences of the high duty. First, it hurts consumer pockets and can be inflationary. The rise in crude oil prices in recent weeks, amid the elevated excise duties, is causing retail prices of petrol and diesel to rise. High fuel prices will feed into higher inflation.
- Second, it creates excessive fiscal dependence on petroleum products. Petrol and diesel have been easy targets for raising revenues for the government. The government needs to diversify its sources of revenue and reduce its dependence on oil for bridging its fiscal deficit.
- The RBI's MPC has raised concerns over the inflationary impact of rising crude oil prices and high indirect taxes on petrol and diesel. The MPC has called for a calibrated reduction in high indirect taxes on petrol and diesel to contain the build-up of inflationary pressures in the economy.

Oil prices mechanism in India

- The share of tax revenues from oil in the government's gross tax revenue has shown a steady increase. Between 2014 and 2016, when global crude oil prices were declining, the government raised the excise duty on petrol and diesel on multiple occasions.
- In the long run, India has been shifting away from petrol price controls. India imports nearly 85 per cent of its oil needs and since the domestic prices are benchmarked to international rates, retail prices are increasing.
- The system of price controls put stress on the finances of oil marketing companies as well as of the government. In 2010, on the recommendations of the expert group on a viable and sustainable system of pricing of petroleum products, petrol prices were made market determined.

Alternative energy sources

- Environmentalists concerned about global warming may not object to high taxes on petrol and diesel as they constitute a carbon tax and discourage greater use. Studies indicate that India's oil needs will be more than any other country by 2040.
- But carbon taxes are inadequate to move towards renewable sources of energy. There is also a need to incentivise the use of alternate energy sources like natural gas and solar power.
- Excessive fiscal dependence on oil can discourage the move towards renewable sources of energy. Further, until public transport that depends on renewable power is created, increasing fuel prices by higher excise is only going to pinch pockets without offering a long-term solution.

Fiscal calculation

- A cut of Rs 5.8 per litre in petrol and diesel taxes to offset rising crude oil prices would result in a loss of revenue to the tune of Rs 87,200 crore, which is nearly 0.39 per cent of GDP. The Barclays report suggested that this would raise inflation by around 56 basis points, given the current level of inflation and size of the fiscal deficit.
- The government's priorities are firmly in favour of supporting the post-COVID recovery and it would thus be more likely to opt for lower inflation and a higher fiscal deficit in the short term.
- If the government reduces taxation on petrol and diesel, its revenue will be impacted. To compensate, the government could have to increase direct tax on sectors that saw growth during the Covid-19 pandemic. But a direct tax may become politically counter-productive.
- Secondly, any further reduction in revenue would widen the fiscal deficit gap. In a year, when the government is ready to borrow money for its capital expenditure, a widening fiscal deficit would ultimately make borrowing more expensive.

Conclusion

It is necessary to look out for alternative mechanisms to bridge gap of fiscal deficit. But that can be achieved only in the long run. In the uncertain times of global recession government is heavily relying on petrol for revenues. With GST still taking shape it will be possible with strong GST and more tax compliance to reduce dependence on petrol duties.

5. What are the potential strategic implications of artificial intelligence? Discuss.

Approach

As the derivative is discuss so it necessitates a debate where reasoning is backed up with evidence to make a case for and against an argument and finally arriving at a conclusion.

Introduction

An AI Strategy defines your AI priorities, goals, milestones, mission, and vision. An AI Strategy focuses on the AI implementation of technology goals while a business strategy focuses on the execution of corporate goals. AI Strategies are being used in corporations around the world and are taking the world by storm. From self-driving cars to health biometrics - from predictive equipment failure to Netflix algorithms - the impact of AI is rippling across an expanding range of industries.

Body

POTENTIAL STRATEGIC IMPLICATIONS OF ARTIFICIAL INTELLIGENCE

- Artificial intelligence can dramatically improve the efficiencies of our workplaces and can augment the work humans can do.
- When AI takes over repetitive or dangerous tasks, it frees up the human workforce to do work they are better equipped for—tasks that involve creativity and empathy among others.
- Although it could take a decade or more to perfect them, autonomous cars will one day ferry us from place to place.
- AI powered robots work alongside humans to perform a limited range of tasks like assembly and stacking, and predictive analysis sensors keep equipment running smoothly.
- In the comparatively AI-nascent field of healthcare, diseases are more quickly and accurately diagnosed, drug discovery is sped up and streamlined, virtual nursing assistants monitor patients and big data analysis helps to create a more personalized patient experience.
- Textbooks are digitized with the help of AI, early-stage virtual tutors assist human instructors and facial analysis gauges the emotions of students to help determine who's struggling or bored and better tailor the experience to their individual needs.

- Journalism is harnessing AI, too, and will continue to benefit from it. Bloomberg uses Cyborg technology to help make quick sense of complex financial reports.
- Last but hardly least, Google is working on an AI assistant that can place human-like calls to make appointments at, say, your neighbourhood hair salon. In addition to words, the system understands context and nuance.

Already much has been made of the fact that AI's reliance on big data is already impacting privacy in a major way. As is the case with most emerging technology, there is a real risk that commercial and state use has a detrimental impact on human rights. However, if implemented responsibly, AI can benefit society.

Conclusion

One may think that AI systems will likely achieve superhuman performance in more and more domain-specific tasks, but not across all domains at the same time, which makes it a gradual process rather than an intelligence explosion. But of course, one cannot justify high confidence in these views given that many experts disagree. One of the absolute prerequisites for AI to be successful in many areas is that we invest tremendously in education to retrain people for new jobs. More generally, one of the best ways to handle pervasive uncertainty may be to focus on "meta" activities such as increasing the influence of effective altruists in the AI community by building expertise and credibility. This is valuable regardless of one's views on AI scenarios."

