Foundation Day of the Indian Institute of Technology Jodhpur
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Address by

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Technology and The Social Contract

Distinguished Chairman of IIT Jodhpur,
Honourable Principal Secretary to the Prime Minister, Director IIT Jodhpur,
Distinguished faculty,
Students, alumni and those who have joined today's conference through the web link.

It is my privilege to address this gathering on the Foundation Day of IIT Jodhpur. This event has a certain history. Both the Principal Secretary and I were scheduled to speak at this illustrious forum many months ago. The Covid-19 interrupted all this, but both of us wanted to adhere to this past commitment. I am indeed grateful that the Principal Secretary, notwithstanding his multifarious and challenging responsibilities, has kept up his promise.

Since we are talking of transformational technology, Jeff Bezos, the CEO of Amazon, has said that, "There is no alternative to digital transformation. Visionary companies will carve out new strategic options for themselves — those that don't adapt, will fail."

There could not have been a better time or context for today's Foundation Day Celebration. This is for two reasons. First, the far-reaching changes announced recently by the government in the New National Education Policy 2020. This has come after a lapse of 34 years; if implemented in letter and spirit and given its new emphasis on foundational numeracy, on preschool education and with the flexibility in the pursuit of higher education, it will truly have a transformative impact on our society. Second, this pandemic has challenged and changed us forever. The new normal is quite far away from what was the old normal. There can only be technological solutions both to the consequences and the management of the pandemic. Today, I take this opportunity to discuss the role of technology in reshaping and resetting the new social contract.

It was in 1762 that Jean-Jacques Rousseau wrote *The Social Contract*, in which he had famously written that, "Man is born free, and everywhere he is in chains." Rousseau believed that the only legitimate governance rubric is one consented to by all the people by entering into a social contract for the sake of their mutual preservation. The concept of the social contract was further refined thereafter in the version of Thomas Hobbes and John Locke. Hobbes believed in self preservation as man's most innate instinct, whereas Locke believed in a separation of power such as the division of states into legislative, executive and judicial branches.

Basically, the purpose of the social contract is to define the relationship between the citizens and the state. The governance structure elected by the consent of the people and in the free choice exercised in democratically elected governments underpins this rubric. This pandemic compels us to revisit this social contract in several fundamental ways. The need to rewrite the social contract in the context of the current pandemic has undoubtedly gripped the interest of many academicians. The driving force behind all this is technology.

In an article published in *Irish Examiner*, Minouche Shafik, former deputy governor of the Bank of England, deputy managing director of the IMF and current director of the LSE, expresses a need to rewrite social contracts. Shafik has looked at it from multiple points of view like issues of gender parity, intergenerational choice between the draft on limited environmental resources in a manner which balances this access to future generations; an insurance guaranteed framework and social security systems which are more robust; more definite principles on rising levels of frustration at inequalities of income and wealth; guarantees for access to healthcare facilities; equality of opportunities in employment; educational structures capable to adaptation into changing pedagogy and skills which would be relevant to the jobs of tomorrow.

Similarly, the theme of this year’s World Economic Forum is called “The Great Reset”. Klaus Schwab, the WEF Founder, has also co-authored a book with Thierry Malleret, co-founder of *Monthly Barometer*, by the same name, *The Great Reset*. In it, principles of rebuilding a better world post-Covid are explored. This theme of resetting also deals with the New Nature Economy report which encourages greener business. The report makes a monumental claim that if businesses prioritize nature, there could be 395 million new jobs globally by 2030.

There are Seven areas in which Technology can have a lasting impact in reshaping human behaviour which is relevant to the new approach on social contracts. This is relevant to us in multiple ways.

The first area is the issue of intergenerational choice on energy patterns. Climate change represents an intergenerational issue in the social contract. Recent years have seen massive global protests by young people against economic models that do not account for the present-day environment. How much right does the present generation have in terms of foreclosing the ozone layer and how much space do we want to use for our economic activities? This includes issues of burden sharing: the old sinners versus the new sinners. There is a need for greater investment in renewable technologies and in terms of businesses, whose fossil fuel footprint is significantly lower. Technology solutions and changes are central. Issues of carbon sequestration, lowering fossil fuel imprint, lasting and affordable cost of renewable energy and readapting activity patterns are part of the same dynamics.

Second, the use of digital technology in harnessing agricultural productivity. Digital agriculture is a phenomenon in which technology is used to collect and analyse data and information along the agricultural value chain. It encompasses a wide range of technologies such as the use of artificial intelligence, 5G, the Internet of Things and precision agriculture technologies including such things as sensors, tracking systems, advanced imaging technologies and
automated machinery. The Food and Agriculture Organization of the United Nations has stated that, “A ‘digital agriculture revolution’ will be the newest shift which could help ensure agriculture meets the needs of the global population into the future.” The Indian Council of Agricultural Research is doing fundamental work in digital agriculture, but they also need to restructure their thinking process to grasp these nascent opportunities, which digital technology now increasingly affords.

Third, in the area of health. The pandemic has exposed several fault lines in our public health care system. In 2018-19, public health expenditure in India was 0.96% of GDP. This is one of the lowest among peer group countries. Out of this, about 70% of the expenditure on health is spent by the States while only 30% is spent by the union government. It has become evidently clear with the current pandemic that investment on health is not just social sector spending, but a great investment in India’s economic growth and development. Investment in technology can ameliorate these issues in the health sector. The use of e-learning, electronic medical records, electronic systems for disease surveillance, radiological assessments and readings, and laboratory and pharmacy information systems can significantly reduce inefficiencies and lack of resources for affordable access to health care.

Fourth, in the area of education. The challenge of improving education outcomes not merely by guaranteed access, but improving outcomes at the primary, secondary and higher education levels by emerging centres of excellence can foster innovation and fresh thinking. This continues to remain a daunting challenge. The New National Education Policy (NEP) 2020 seeks to address these complex set of issues. This policy, which emphasizes outcomes by strengthening foundational levels in primary school, is a laudable move. At higher levels, offering credit banks, enlarging the choice of curriculum and demolishing artificial compartmentalisation between different disciplines and pursuing flexible modes in pedagogy have stymied the creative ability of students. There is also an enhanced focus on technology in the New NEP such as the creation of an autonomous body called the National Educational Technology Forum to provide a platform for the free exchange of ideas on the use of technology in education. Social distancing has also necessitated the need for greater investment in online and digital education. There is no doubt that, in the coming years, there would need to be a creative mix or a hybrid between online and offline education. Technology must determine the optimum mix of this hybrid.

Fifth, in the area of redefining the fiscal architecture of the Indian governance matrix. The Finance Commission underpins our fiscal architecture. But over the past 70 years, we have not seriously focused on outcomes of public outlays. the role of technology in improving assessments and outcomes of public outlays is fundamental. This is catalytic. This transcends the issues of the centre and the states. Several areas in the Constitution are amiable to technology and technology options which can reshape the artificial distinctions between the centre and the state, between the 7th Schedule of the Constitution and the use of Article 282. Improved assessments of outcomes from public intervention will have a far-reaching impact on the governance rubric of this country. It can transform the fiscal architecture in multiple ways. Technology, again, holds the key.

Sixth, in managing geopolitics. India’s reliance on imported defence equipment continues to be unexceptionably high. This has stymied the development of high-quality Indian research. Digital technology can play a much more significant role in the modernization of the Indian Armed Forces. Through the Defence Research and Development Organisation (DRDO), in conjunction with the Council of Scientific and Industrial Research (CSIR), other private sector initiatives must increasingly look into the production of equipment needed in defence at a domestic level. Harnessing creativity and innovation, like many other leading countries have done, will have multiplier gains. I sometimes have thought that if somebody sitting in the desert of California can pinpoint a missile to kill an important target thousands of miles away through the use of drones, digital technologies and remote sensors, this is the pointer where technology is leading us. Futuristic drones increasingly using artificial intelligence and 5G technology will only advance the frontiers of possibilities. We must explore the increasing role of technology in the area of fundamental research and what it has to offer. Managing geopolitics is critically dependent on our defence capabilities. Technology will again prove to be decisive.

Seventh, is the issue of India’s growth potential. In seeking to achieve our growth potential of 7 to 8%, there are two core issues involved here, namely improving our total factor productivity and reducing the incremental capital-output ratio (ICOR). What can technology do to make capital more productive, which will be reflected in an improved ICOR, which is currently only between 4.5 and 5. Technology, coupled with significant reforms in many of these areas, some of which have been outlined above in health, education and maintenance of infrastructure, can make a decisive difference. If we wish to become important global players, we have to obviously grow much faster over the next 10 years, than we did in the past decade. Only technology solutions can enable the realisation of Atma Nirbhar Bharat, PM and our quest and vision prompting in this direction.

Rousseau had said that, “To renounce liberty is to renounce being a man, to surrender the rights of humanity and even its duties.”

I can see that the old social contract is dead. The new shaper of the new social contract is technology. The power of the pandemic has unleashed the power of the unknown. Technology can help the unknown to become less unknown if it unleashes the far-reaching changes in some of the areas which have been outlined above.

To reiterate the theme of this year’s World Economic Forum, we need a “Great Reset”. Klaus Schwab has said that, “The Covid-19 crisis is affecting every facet of people’s lives in every corner of the world. But tragedy need not be its only legacy.” We need to move forward and push the reset button on the social contract.

I have no doubt that this premier institution in re prioritizing its research will look to the cutting edge of what technology has to offer. Our Prime Minister has articulated that the vision of India is dependent on India increasingly becoming an innovation society. The New National Education Policy has given a thrust in this process. Thomas Edison had said that, “The value of an idea lies in the using of it.” We must utilize this knowledge not only in terms of the past and what we learn from it, but knowledge to explore the mind, which knows no boundaries. We need to combine innovation and imagination. This coupled with the other changes can rewrite a new social contract. It can reset the button for a new normal. Technology will be decisive. An institution of this kind is well poised to become both a player and a catalyst. It is this expectation from IITs as centres of our technological excellence that we all hope and seek. On this Foundation Day, this vision could prompt the faculty, the young researchers and the students in seeking what this institution can offer in these pandemic times.