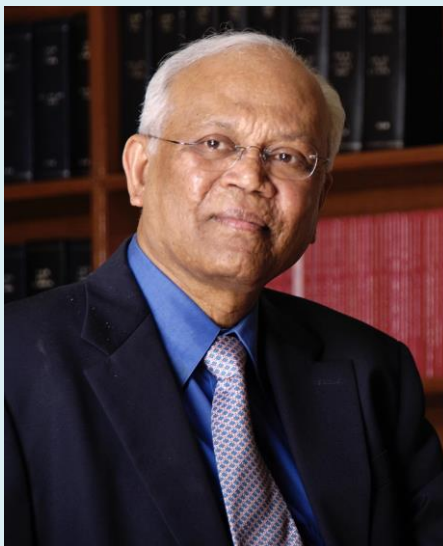




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**ADDRESS BY THE HONORABLE CHIEF GUEST of THE 8TH
CONVOCATION OF IIT MANDI**

Reinventing Post-COVID India

Hon'ble Chairperson of the Board of Governors, Prof Prem Vrat, Director of IIT Mandi, Prof Ajit Chaturvedi, distinguished members of the Board of Governors, distinguished Deans and Faculty, proud graduates of the day, their equally proud parents, ladies, and gentlemen:

I deem it a special privilege and an honour to deliver this convocation address of one of our youngest IITs. Let me say at the outset that IIT Mandi has an advantage. Why? Ambience and ambition matter. Ambition without ambience will not work. Ambience without ambition will not work either. In terms of ambience, you have one of the best in India. And I have witnessed your rising ambition. All this augurs well.

I want to begin by congratulating the parents first. Education is the best gift that you could have given to your children. Then I want to congratulate the graduates of the day. This is a very special day in your life. When our generation graduated, India was a third world country. When you are graduating, India is well on its way to becoming the third most powerful country in the world. And my friends, it is you, who will be charged with building this great future of our great nation.

They say that institutions can't build the future of the young, but they can build the young for the future. You are fortunate that IIT Mandi has equipped you fully with skills and tools to deal with this challenge most confidently.

You all are also entering a world, which is exciting as well as challenging, as we are living in a VUCA world, which is volatile, uncertain, complex, and ambiguous. We have seen that 2020 will go down in the history as the VUCA year of the century, due to the unexpected onset as well as unprecedented aftermath of the Coronavirus pandemic. We have seen vast devastation of lives as also livelihoods. While we repair and recover, there is also an opportunity to rethink, reimagine, reinvent a new India of our dreams.

In that direction, our visionary Prime Minister has given the clarion call for '*Atmanirbhar Bharat*', which means self-reliant India. But in today's globalised world, the idea of self-reliance cannot be about a return to import substitution, or to license-permit raj and inspector raj, but an active participation in post-COVID global supply chains, coupled with a strategy to attract foreign direct investment. *Atmanirbhar Bharat* must be built with *Atmavishwas*, with self-confidence, it is all about standing up confidently in the VUCA world. And it is you, my young friends, who give me that *Atmavishwas*.

In 2020, there is suddenly an opportunity in adversity for India. With the Chinese Government and its companies being viewed with great suspicion by the global business community, India has a great opportunity to establish itself as a global manufacturing hub. India will be able to attract global investment provided it brings in the much-needed reforms in terms of land, labour, law, logistics, and cost of inputs. And the Government is well on its way to accelerating these reforms.

The second opportunity for India is from the accelerated pace at which digitalisation is taking place in India. Innovation in digital India will accelerate due to four powerful drivers that are all in favour of India. These are namely the exponential nature of technology in terms of sharply rising performance and simultaneously plummeting costs, creative convergence of technologies into new combinations, the emergence of digital platforms, and declining entry costs due to affordable cloud-based computing and open-source software.

India will have to use DARQ power to drive innovation. That means a combination of distributed ledger technology, artificial intelligence, extended reality, and quantum computing. While we may look at the sky for these innovation frontiers and ground-breaking innovations, there are some harsh realities on the ground that will cry for innovations focusing on inclusion and sustainability.

Post-COVID, India needs accelerated inclusive growth. And also, a sudden rise in inequality will need disruptive and not incremental innovation. Digital transformation can be a great force multiplier here. Here are some illustrative examples. Take education. Post-COVID, one-third of the 1.6 billion children around the world, who suddenly went out of school, do not have access to online learning due to digital deprivation. We need innovations that will provide digital access equality despite income inequality. India had made headway during 2001-2005, innovating to create extremely affordable indigenous tablets, such as Simputer, Akash, and Mobilis. But then missed the journey from ideas to impact. We need to restart this innovation journey with renewed zeal. Just as we became the pharmacy of the world by supplying high quality affordable generic drugs to the world, India can be a leader in supplying high quality affordable digital devices to the world.

Digital reengineering can transform our healthcare system. Look at an illustrative example of the challenge of shortage of ICUs during the pandemic and the power of Indian inclusive innovation that was led by digital reengineering.

In my mother's name, I have created the 'Anjani Mashelkar Inclusive Innovation Award'. This is the tenth year of the award. Just look at the two winners this year, Dozee, who precisely achieved this objective. Startup Dozee, using IoT, set up a continuous contact-free vitals monitor with remote monitoring capabilities and alert system that converts any bed into a step-down ICU quickly (a few minutes) and affordably (5% of the cost of a full-fledged ICU system). It has a proven medical-grade accuracy of 98.4%. The data are uploaded to the cloud to give remote access so that the clinicians can access the data from a safe distance. The data are further analysed using advanced machine learning and artificial intelligence algorithms. Not just coronavirus pandemic but the perennially persisting pandemic of poverty will need innovations.

The second winner of the Anjani Mashelkar Inclusive Innovation Award 2020, namely startup JioVivo created an IOT based solution, Save Mom with a culturally aligned user-friendly wearable maternal healthcare device, which (together with a suite of apps) monitors a mother's health and uploads the data in the cloud for doctors to view it remotely. It saves the lives of pregnant women in remote villages. Their solution is already deployed in 100+ villages in southern states. The cost? Just one rupee per day!

Summing up, India can do digital reengineering of everything, from education to health to financial services and at a pace that India has not ever witnessed before. And that is how we can reinvent India.

The third opportunity is provided by the New Education Policy (NEP), which could be transformative. To meet the challenges of the digital world in which we are going to spend our future, we must do a nationwide audit of all the higher educational technological institutions to understand the current level of preparedness in terms of exponential technologies, industry 4.0, and the needs of future jobs, that will replace the old jobs that were prevalent in Industry 3.0.

These exponential technologies are the Internet of things (IoT), Artificial Intelligence (AI) (Machine Learning), Robotics Process Automation (RPA), Virtual/Augmented/Mixed Reality, Sensors, 3D Printing, 3D Visualisation, Mobile Internet and Cloud, Big Data Analytics/Open Data and Blockchain

New skills in the era of industry 4.0 will be the ability of the students with complexity, critical thinking, emotional intelligence, cognitive flexibility, creativity, etc. Considering creativity, India's education system has given more importance to logical thinking and reasoning capabilities, but now, with AI, the new jobs will be more focused on creative thinking.

IIT Mandi will need to transition towards a learner-centered education model where learning and work go hand in hand. Customised learning modules coupled with adaptive, dynamic, and agile life-long learning should be the focus of the universities to create a workforce with long-term sustainability.

Indian academia must adjust to the power of open disruptions such as open knowledge (Udacity, Coursera, Khan), open-source development/collaboration (GitHub), open innovation (Quirky), and open research (Materials project, OSDD). The disruptions post-COVID in terms of the huge acceleration of digitalisation must be factored into NEP, which was written in the pre-COVID era.

Then only India will move from ‘right to education’ to ‘right education’ to ‘right way of education’ taking full advantage of the great disruption that exponential technology is going to create.

In the end, my young friends, I will give you five Mashelkar Mantras, which have helped me in my life. I hope they will help you too. Here they are:

First, The beginning of your own life is not in your hands, but where you end up is. So remember, your aspirations are your possibilities, and therefore, keep your aspirations always high. When someone tells you that it can’t be done, take it that it is more a reflection of his or her limitation, not yours.

Second, there is no substitute for hard work for becoming successful. Like instant coffee, there is no instant success. I have myself worked 24x7, week after week, month after month, year after year, and will do so till I take my last breath. The golden rule is the following. Work hard in silence. Let success make all the noise.

Third, Perseverance matters. Always too early to quit. Quitters are never winners and winners are never quitters. Interpret FAIL as the first attempt in learning.

Fourth, be always a part of a solution, never part of a problem. If you can’t find the way, create your new way. You will keep on knocking on the doors. Don’t get frustrated if they don’t open. Create your doors.

Fifth, I strongly believe that there is no limit to human endurance, no limit to human achievement, and no limit to human imagination, excepting the limits you put on your mind yourself. Be ‘limitless’ in terms of your imagination. So, every day, when you wake up, no matter how old you are, say to yourself that my best is yet to come, and maybe today is that day.

My young friends, all my best wishes and choicest blessings will be always with you, when you keep on climbing on this limitless ladder of excellence and bring glory not only to yourself, to your family, but also our beloved nation, our glorious motherland.

Dr. R.A. Mashelkar