

Strategic Importance of Data Sciences in Research and Innovation: Kiran Mazumdar speaks at IHC

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IHC Annual Lecture by Kiran Mazumdar-Shaw delivered to a packed audience.



Kiran Mazumdar-Shaw, CMD Biocon Limited and Chairperson, Association of Biotechnology Led Enterprises, delivered the IHC Annual Lecture 2018. A widely anticipated annual event in New Delhi's cultural calendar, the IHC Annual Lectures in the past has featured leading voices from public life on a wide range of compelling topics. Welcoming the gathering, Mr. Rakesh Kacker, IHC Director, said - "Having addressed areas such as Value-based Nation Building with Dr. A. P. J. Abdul Kalam, Global Economic Governance with Dr. Raghuram Rajan, and Sustainable & Compassionate Innovation with Mr. Sonam Wangchuk in the previous annual lectures, it was a privilege listening to Ms. Kiran Mazumdar-Shaw on the transformative potential in Data Sciences and how technology really pushes the envelope."

Speaking on the topic "Strategic Importance of Data Sciences in Research and Innovation" to a packed and diverse audience comprising of IHC members, entrepreneurs, diplomats, policy experts, researchers, students and the civil society at large, Ms. Mazumdar-Shaw spoke at length in her characteristic lucid style and with deep insight. She underlined that "Data Science can unleash breakthrough innovation and be the most potent instrument for transformative social change the world has ever seen." The programme was chaired by Mr. Kiran Karnik, President, India Habitat Centre.

She spoke of data as the lifeblood of our rapidly expanding digital existence and its emergence as the new raw material of business. "The International Data Corporation (IDC) projects the global datasphere to grow to 163 zettabytes by 2025. This unimaginably vast amount of digital information can enable humanity to do many of the things that were previously considered impossible. This would transform the information ecosystem, and data will not remain as historical artefacts anymore. And humanity now can make sense of this data and generate new insights, create new knowledge and enable breakthrough innovation by finding relationships between distinct kinds of information", said Ms Mazumdar-Shaw.

In her lecture, she looked at the various ways in which data science is opening new doors to the future by spurring research and innovation.

- **The 'data network effect'** - She shared her views on how the increasingly hyper-connected world is setting in motion the "data network effect" which has the potential to set off a powerful virtuous cycle of innovation. How quantum computing can enable Artificial Intelligence to deliver on its stated promise of transforming the digital world by delivering solutions at speeds that are orders of magnitude faster than classical computers.
- **Data Science for Affordable Innovation** - She provided an interesting insight into how data science is today enabling the pharmaceuticals industry throw off the shackles of the conventional one-drug-one-target-one-disease model of healthcare innovation, which is inefficient, expensive and time-consuming. These developments come at a time when the astronomical prices of cutting-edge medical therapies are grabbing headlines across the world and leading to a fierce debate on the urgent need for drug affordability.
- **Data Analytics for Drug Modelling** - Bioinformatics, a specialized branch of data science, is helping incorporate knowledge derived from genomics, proteomics and other biological disciplines into drug discovery and drug design in order to come up with revolutionary ideas for new molecules. Ms Mazumdar Shaw says: "Data analytics is helping predict clinical outcomes, inform clinical trial designs, support evidence of effectiveness, optimize dosing, predict product safety, and evaluate potential adverse event mechanisms." It is allowing scientists to look at existing data in a multifaceted way for developing new anti-cancer drugs, which can typically cost billions of dollars and take many years of research.
- **Big Data Provides Huge Growth Prospects for India** - The lecture touched on how India's vast genetic diversity and the quality of its data scientists offer a huge opportunity for the country to create and mine a rich source of genomic information. Smart mining of genetic data can help India transform the disadvantage of a huge disease burden into a competitive advantage by capturing and analysing this information. She called upon the Indian government to play an enabling role in incentivizing the creation and mining these databases by giving tax breaks to companies involved in such activities.