Overview
Futurology: Forecasts and Initiatives

From time immemorial man has been indulging in dreaming about the future. In the case of Nostradmus it was an uncanny sense of clairvoyance while in the case of Leonardo da Vinci and Jules Verne it was an acute understanding of the scientific principles that triggered their thoughts and writings. Down the ages we see lot more thinkers indulging in creating scenarios that they thought were plausible: HG Wells, Isaac Asimov, Aldous Huxley, George Orwell, Arthur Clarke and so on. All of them were writers of science-fiction and their writings invariably had sound scientific basis. In the 20 th century we see a new genre of thinkers who are attempting to predict the future based on their understanding of the nature, systematically and scientifically. Alvin Toffler and John Naisbitt are in this category. This is the beginning of futurology as a discipline of study and research. The two World Wars have ushered in a lot of scientific developments; futurology too got benefited in this period.

Technology and competition have been powerful forces triggering a lot of change. They also propel each other: a new technology will cause the competition to intensify and increased competition would lead to better technology. There is also the combined result of the world becoming more complex and more unpredictable in this process. Life-cycles of products, processes and even organisations tend to be shorter in such uncertain situations. In this context organisations and nations would like to have a pre-view of the shape of things to come and take appropriate positions with respect to the future. This explains the significance and relevance of futurology in the 21st century. This is the context of this book: it looks at the genesis of futurology as a discipline, its methods, its relevance, some major studies and some forecasts in different sectors.

The book is divided into two sections. The first section, "Basic Concepts", gives a conceptual understanding of the evolution, methodologies and emerging trends in the field of futurology. The second section gives a view of the various sectors based on a host of forecasts and expert opinions.

The first article, *"Futurology in Perspective"* (by P Bala Bhaskaran), explores the evolution of futurology as a discipline with fair amount of scientific rigour. The article attempts to define the concept of futurology by specifying its boundaries and limitations. It tries to distinguish between science-fiction and futurology; it tracks the emergence of futurology from the shadows of science-fiction imbibing scientific method on its way. The article also discusses the relevance of futurology in the context of fast changing technological changes. It concludes that futurology is not about predicting the future alone; it is about taking proactive positions towards creating desirable outcomes in the future.

The article, "*Testing Tea Leaves: Formal Methods for Evaluating Validity of Forecasts"* written by Dr John Vantson, describes various methods to test the data, source reliability

and the use of appropriate models of forecasting. There is an increasing trend to look up to forecasts to know the future of various aspects like technology, economy, business environment, market tastes etc in order to make long term plans and positions in the future. Quality and reliability of the forecasts are critical in this context. The article outlines a framework to evaluate these aspects of the forecasts. It also explains, with illustrations, the **five views** people take on the future.

The article, *"Future belong to those who ……."*, is about the process of predicting the future and the need to combine it with our aspirations about the future. First it discusses the various methods of predicting the future like trend monitoring, scanning, scenario planning etc. This would give a picture of the 'likely future'. Then it is necessary to create a 'preferred future' based on aspirations, vision and mission. The author talks about achieving a balance between the 'likely future' and the 'preferred future' by taking necessary proactive steps and strategies.

"Current Relevance of Some Prominent Future Studies" is an attempt to critically evaluate two major futurology initiatives. The Limits to Growth is a major futurology initiative taken by the Club of Rome in 1968. Published in 1972, it looked at the sustainability of the human society. This had study evoked tremendous criticism from various quarters. The article probes the relevance and utility of this study thirty years after its publication. Another major futurology initiative the article evaluates critically is the Goldman Sachs study called the BRICs Story. The article throws light on the methodologies of the study, its current relevance and implications.

In an interview, Jorgen Randers, co-author of the Limits to Growth, re-assesses the relevance and validity of the initial study in the current context. Time, according to him, has enhanced the complexity, turbulence and uncertainty of the world; it has questioned the concept of the finite world; it has enhanced man's technological capability and understanding of the world; but some of the basic issues of sustainability continue to elude for a permanent solution.

The first section concludes with a summary of the book "The End of Poverty" by Jeffrey Sachs. The book is an action plan to wipe out poverty from the face of the earth in about 25 years. The book has defined poverty; mapped its existence on earth; explained the historical evolution of poverty in each region and finally has given a blue-print or an action plan for its removal. The book gives a good exposure to the process of development and builds up a frame-work for global action towards a better tomorrow.

The Second Section of the book, "Forecasts and Emerging Scenario" attempts to capture the emerging scenarios of the various sectors through special future studies, forecasts and expert opinions.

Nick Bostrom, in his article, *"Future of Human evolution"*, explores the risks involved in the process of evolution. The developmental process is about evolving more and more complex systems on a continuous basis. The author talks about scenarios where evolution

while creating more complex systems simultaneously eliminates all that we care or know about. He goes on to explore how such a catastrophic situations can be avoided: a possible remedy would be to evolve a globally coordinated policy to control human evolution by modifying the fitness function of future intelligent life forms.

Ray Kurzweil, in his article *What the Future Will Bring*, discusses the power of technology in enhancing the human life and health. The main focus is on the three coming revolutions namely genetics, Nanotechnology and Robotics. In another article, *Future of Life*, Ray Kurzweil talks about the future of bio-tech and its ramifications on mankind. By 2010 the scientists are expecting to have complete genomic maps for the thousands of species; the scientists would be able to put together the genome for the missing link that brought about the evolution of man from his ancestors. By 2030 scientists are expected to be able to do 'modelling of complex biological systems.' The author also talks about genetically modified foods by that time.

"An Age of New Possibilities – How Human Values and an Entrepreneurial Spirit Will Lead Us into the Future" is a review of the book **An Age of New Possibilities** by Richard Mohn. The book is based on the German experience of economic reforms; it provides valuable insigcohts on the reform process to the administrators and politicians. Successful entrepreneurs have demonstrated the need to constantly review the changing preferences of stakeholders and the society, and adapt to these changes. Governments can succeed in their reform process by adopting the successful initiatives from business.

John A Laitner explores the energy future of the US economy in the article, *"Exploring Energy Impacts of Emerging Technologies"*. The author has used the methodology of scenario planning in this attempt. He has evaluated the EPA-Argonne study and the various scenarios developed by it. He concludes that these methods have however failed to depict the role of R&D, energy prices, taxes and subsidies in technology innovation for reducing energy prices.

The article, *"The Intelligent Internet: The Promise of Smart Computers and E-commerce"* is an exploration into the emerging area of communication. The author says that people will be able to converse with virtual people while shopping, working or learning. Virtual universities, e-health, online-voting etc would be the order of the day; he predicts a high level of maturity in the application of internet technology and the consequent interface with technological advances.

"Global Trends: The World in 2030" describes the macro scenario of the world on all possible dimensions. The article is the result of a survey on future research on demographic, economic, political and scientific development. 2030 is chosen as a temporal horizon. Macro-economic trends have been predicted for various countries in terms of population, growth rates etc. The author relies on a hypothesis that the alliance between the free countries would remain the best bet for international peace and progress. The article also looks at the emerging areas of nanotechnology, genetics, weaponry, energy sources etc.

"Knowledge Economy: Is the United States Losing its Competitive Edge?" is an exploration of the emerging knowledge era with specific focus and concern on the US and its relative position in the world. The European and Asian economies are expected to come up significantly in the coming decades and in this context the article explores ways and means to to preserve the dominant position of the US. The action plan in this direction is a guideline for other economies also.

In the article *"To Be a Credible World Power",* the author Pavan K Varma, explores the credentials of India to be a world power. He lists democracy, entrepreneurship and the knowledge-power as positive attributes; corruption is listed as a major negative attribute. He has other suggestions to bring in better cohesion among the citizens of the country.

Ashutosh Varshney, in his article, *"A New Tangle – India China and the US",* makes a comparative analysis of the three big countries of the world. As per the projections of Goldman Sachs, these countries are expected to be the biggest economies of the world. Ashutosh Varshney lists the absence of world-class corporations as a major limitation in China; for India he lists the diversity of the country and its inevitable reliance on coalition politics as major limiting factors; for the US the security concerns and the proliferation of cheap goods are listed as the limiting factors. This article would serves as a preface to the long term projections made in studies like the BRICs story of Goldman Sachs.

There are two annexure at the end of the book: One lists the major futurologists and a gist of their works; The second annexure lists the major think-tanks that are dedicated to future studies. We believe these will give a glimpse of the who's who of futurology and what is on the frontiers of futurology.

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SNAPSHOT

The Age of Permanence, according to Alvin Toffler, is dead. The current era is characterised by complexity, uncertainty and fast changes triggered by technology and competition. In such a situation it would make a lot of sense if we can forecast the shape of things to come. This need has lead to the evolution of futurology as a discipline.

Dreaming and crystal-ball-gazing have been pastimes of men in all ages: from Nostradamus to da Vinci to Jules Verne, to HG Wells, to Aldous Huxley, to George Orwell, to Asimov, to Arthur Clarke. All of these were writers of science-fiction. The 20th century brought in a new genre of thinkers like Alvin Toffler and John Naisbitt who gave shape to the concept of future studies. Futurology as a discipline of study and research arrived.

The second half of the 20 th century saw the emergence of think-tanks dedicated to the study of future. One prominent study is *The Limits to Growth* [1972] initiated by the Club of Rome. This was one of the initial ventures in the arena of futurology exploring the long term sustenance of the planet earth. The prognosis of this study has not lost its shine yet.

The book, "Futurology: Forecasts and Initiatives" is designed as a primer to the reader by giving an overview of the evolution of the subject of futurology, its methods, its relevance, a glimpse of some major future studies and some forecasts on select segments.