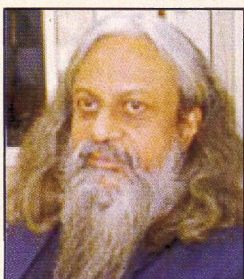


Key Note Address

by



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**UTTARAKHAND TECHNICAL UNIVERSITY
DEHRADUN**

MEETING MARKET NEEDS

TECHNOLOGY AND INNOVATION MANAGEMENT

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INTRODUCTION

Let me at the outset thank the H.E. Chancellor, Hon'ble Chief Minister, Vice Chancellor and other University authorities for giving me the opportunity for delivering this first Convocation address to the outgoing students of this newly emerging University, named Uttarakhand Technical University (UTU). It is three years young. Each batch of students who pass out and engage themselves in different professions in the outside world put the stamp of the University in the sectors in which they will serve. Over a period some of them will impact the national and global economy and eventually several societies. Dear students, the brand of the university will very much depend upon how you perform in the world outside the institution of your University. You are the first batch to go out and thus have a unique historic role to play. I am therefore going to share with you some facts and thoughts as to

how this economic, societal, technological and market systems perform in India and the world.

GLOBALISATION AND INDIA

It is no longer possible to imagine a compartmentalised protected corner of the world. The speedy process of globalization is a reality of 21st century. For a country of the size of India, the process of globalization is a great opportunity for the people of India. As a huge potential market, it will attract foreign investment and along with some amount of new technological knowledge and newer business processes. Indian investors will also open up new markets. All these will lead to greater employment in organized and unorganized sector.

Increase in employment has multiple effect on the economy. Increase in income for a large number of Indians leads to greater consumption of goods and services. In turn that leads to more business activities and new jobs. It also leads to societal changes. Of the so many new benefits that have accrued to the society and people due to the liberalization of Indian economy from 1991, mobile phone is a beautiful example of impact on society. Another one is the availability of multiple channels of TV in many Indian languages in different parts of India. The needs of Indian people from different strata of society have strongly influenced the contents of multiple TV channels

(running to 100 or more) and also the spread of cable TV and satellite direct to home (DTH) services. All these in turn have led to growth of many new entrepreneurial businesses in multi-media, TV reporting, animation etc. Collectively these are called "Creative Industries" which have a great potential to grow and also impact the global creative industries. Spread of various Indian processed foods and new packaging industries forms another growth sector. I can list many more, including real estate and retail. Thus rapid Indian economic growth is assured for next fifteen years, though there may be several ups and downs in certain individual sectors. I have explained about this process in one of my earlier convocation address delivered at the Bharatidasan University under a title "Next Sixty Years: Actions Now" (12th October, 2007). A copy of it placed on my website: www.ysrajan.com I have described the next fifteen year growth period as period of cataclysmic fast growth. Dear students, you have that adventurous period (from now upto say 2025) before you. Along with the rough and tumble of that period, which will also increase your income levels, it will be necessary to prepare yourselves, and the organization or industry you work for to meet the challenges of the subsequent period of innovative India; during that period (post 2025) many Indian concept based, and India innovated products will start making their mark in the domestic and global markets. This phenomenon will be distinct from what is currently prevalent : import of foreign

technology, designs and turnkey consultancies. During the immediate next fifteen years that is from now to say 2025, such a follower type of economic and technological growth (as has been in the recent past many years) will take place, more as catch up and expansion of untapped potentials of the Indian people as well as for meeting the unsatisfied and under-satisfied demands of their material and social needs. That is one of the main reasons for the rapid cataclysmic growth being witnessed by India now.

Let us now understand what is meant by market, how to tune the technological and business models towards meeting the market needs and also as to what is meant by innovation in this context. We will also touch upon these concepts also from the later period innovative decades of India (post 2025).

THE INDIAN MARKET

Mere hype of 1 billion plus be it in the context of a sports event or an iconic performance of an artist or an economic market, is away from facts. Indian demography is very varied. It is about 54% under 25 years of age. About 10% above 60 years of age. But more importantly within these aggregate percentages lay buried the harsh social and economic realities of Indian people. Of the total employed persons only about 6% are in organized sector with some surety of income, terminal benefits post-retirement, and some

basic social security facilities (like medial cover) available during the period of employment. Others are more or less daily wagers. Every day is a new day with new risks. But even within these harsh conditions, they have been resilient to survive, to earn income for themselves and their family and also to capture new opportunities when they arise.

The income distribution and day-to-day needs of Indian people is so varied that it is not possible to go by a single formula of success for meeting their needs. Even within an universal category of needs, say food, there are sharp variations of the type, affordability, access etc. Thus local preferences, customs and constraints dominate the choices. Foreign food and beverage giants have learnt a strong lesson in India! Indian palate has dominated over everything with strong local variations. So it is for many other fields even in the choice of motorbikes or automobiles.

Those in search of larger markets for their products and services have also to learn beyond these diversities. If they only go by upper middle class fads their potential markets gets limited. There is a deceptive euphoria in the beginning because of the huge sizes encountered in India. Even in a narrow niche market there can be a few tens of millions of consumers. But if the investors and producers learn to understand the social and aspirational needs of varied strata of Indian society which is severely constrained

by income levels, then they can choose their technologies and business models to suit such a population. That is the new type of innovations, which Indian entrepreneurs have to learn as also their foreign counterparts and competitors who have interest in India.

It is not a cheap throwaway product which low income consumers will aim for. It has to be modern. It is to add a new value to their lives in terms of mobility, access, capability of using time effectively in a day to suit their working needs and some rest, etc. At the same time the pricing must be such as to enable them buy it without too much of compromise of other basic needs of food, habitat etc. Mobile phone gave all these points to the low income Indian consumer. It is possible to think of such solutions in many other sectors too.

It may not always mean a new technological R & D. It has to be a choice amongst many existing ones. After such a choice, one has to system-engineer them innovatively to reach a new customer, within the constraints of their income levels. If need be some performance requirements can be downsized to meet the cost constraints. You will find such a range of low cost mobile phones to highly sophisticated hand held wi-fi systems. Food industries in India have mastered this diverse range from a four wheeled street side

hawker selling hot food to dhabas to middle income eat outs to super rich five star hotels.

SOCIAL MARKETS

When I refer to markets I do not merely restrict its meaning to stock markets, financial markets and the transactional markets of a consumer economy. Though market forces play a key role in a society and its economic systems, there are a number of societal needs that cannot be satisfied merely by the operation of market forces. In areas like national security, the State plays a major role while citizens accept the restrictions placed on them and cooperate with the State. But for items such as protection of environment mere laws and regulatory agencies or incentive-disincentive systems for business etc. alone will not suffice. Citizens and civil society have to play a major role. There is a 'market' or felt social need for having clear water or fresh air or a nice surrounding. Paying for it, is not easy in terms business processes. A very rich person can acquire a huge farm land and create an excellent habitat for himself or herself. But she or he cannot create such an environment wherever they have to go.

In places like Uttarakhand there are a number of beautiful and environmentally unique areas. But there is also a large number of poor people living there. One cannot expect that they will remain in those difficult terrains without any access of modern facilities of life.

Nor can these areas be left to rapacious consumption by investors who can market them as beauty tourist spots for satisfying the felt needs of some other segments of Indian or foreign society. Definition of social needs in case of environmental segment, ranges from micro-social level in terms of local environmental issues, to global issues. Again individual business or R & D groups may concentrate only on one issue and project them as ultimate solution. But the reality of life is more complex.

I have given these few illustrations only to point out the complexity of social markets. They are not pure public good as it could be in the case of defence forces. Social markets have many complex interactions in most other cases. There is often a clear perception one's own personal, family or nearby group's needs; then the concern expands to broader issues. But an increase in the tariff of water to be able to establish and to operate a waste-waster-recycling plant to ensure sustainable water supply to individual households will be resisted! However when a water crises is faced, then more costly and less optimal quick-fixes are allowed by public opinion thus enabling, expenditure from public funds (diverting them from some other area of social need).

Dear students you are stepping into a career at a time when a bulk of Indians are truly aspiring for better quality of life. It is not the old cliché of *roti-kapada-*

makaan. Even a poor Indian has a much more nuanced personal and social need. You need to understand them so that your organizations and enterprises can meet such a huge emerging market needs. Business success and therefore your own success even if you are employed (and are not an entrepreneur) will depend on understanding such complexities of market needs in India. If you are a researcher or doing R & D or design for a new product or service, your understanding of the complexities of transactional and not so transactional social markets of India will be of great help. Unlike the scientists, engineers or technology managers of our generations, you can have many great new product successes, with such an understanding before research, development or design.

MOBILE DIAGNOSTIC UNIT IN UTTARAKHAND

As a continuation of social market needs, one has to address the health sector. It is wide ranging from public health systems to advanced super specialty centres. One important element of the modern health services delivery pertains to good quality medical check up to facilitate the physician to prescribe correct treatment. Most villages in India, even those which have functioning primary health centres (PHC's) do not possess any good modern equipment. A well trained doctor in a PHC is wasted in terms of good quality service delivery. Even in some of district

headquarters where secondary health centres (SHC's) operate, there are problems of access and equipment downtime; equipment do not function or unavailable due to power cuts and lack of maintenance. Often people in states like Uttarakhand have to travel to the State Capital, wait for two or three days to get simple diagnosis done. It is a lot of expenditure for them, driving many families to bankruptcy or severe debts.

It was so in Uttarakhand as well. A real social need existed in terms of modern health check up for people who seek the advice of a medical doctor. Laboratory testing facilities, ultrasound unit, X-ray unit, an ECG equipment, gynecological table, and a diesel electric generator were all integrated into a simple bus which can run on the usual roads in the mountains. It was a major innovative step and system engineering using existing technologies. It was to meet a major social need of people with minimal investment. The project also took into account the social needs of medical and paramedical personal who prefer a city or town life because they want better education for their children and desire 'goodies' which towns and cities can offer. So the diagnostic unit went mobile. The doctors stayed at Almora but for a stretch of about ten days, the diagnostic equipment unit bus and a van carrying doctors and paramedics will go to villages according to a pre-announced calendar. They return after a trip, take a few days off and restart another route. The experiment was done by TIFAC

(Technology, Information, Forecasting and Assessment Council) along with Uttarakhand Government and Birla Institute of Science & Research, Bhimtal. It is a grand success functioning for about seven years with a small interruption for re-engineering the unit recently. It had an exemplary record of service to more than 1.25 lakhs people which about 40% were of BPL (Below poverty line) category. The success have spurred the Uttarakhand government to decide one such unit for all the districts.

I have pointed out this example mainly to show how widely felt social need can be met with right business plan, technology and innovation. It is possible to run more such units all over India and in many parts of the developing world as a public-private-partnership mode. Even ordinary low income people can get good modern service and the operator can profit, if charging and consultancy policies are fine tuned.

I feel some of you in a similar way, may be able to venture into delivering education to elementary schools in rural and remote areas and also for migrant children with innovative use of mobile units, satellite and/or terrestrial communication and use of many local talents to supplement. Education and right economic skills (which can fetch better incomes) are universally felt social market needs of all Indians. It is continuing need as globalization process introduces many rapid

changes in business plans and therefore the worker profiles. It look forward to many of you coming up with new solutions as suited to the diverse needs of India. It can also be a good business as service industry.

TECHNOLOGY AND INNOVATION

I have elaborated on a few of the many aspects of economy and society as well as the markets which are imbedded in them. Markets – both of consumer type or social need market type – determine the major directions of economy and business. If they are ignored or ill understood, business will fail and economic planners will fail to reach the targets they have planned. Markets in India are very diverse due to the demography and wide disparities in income levels.

The persons who will drive the economic, business and technological engines of the country or the State need to understand these market needs and their changing dynamics.

Things don't stop there. Right technological solutions have to be found out from the existing global or domestic milieu. If new innovations can help to modify them or downsize them to meet the lower income group market needs or to change to suit Indian cultural requirements etc. they need to be attempted. More the innovation added to the existing milieu, more

will the products / services be closer to the market needs described earlier.

Those of you who are ready to venture into such enterprises that will be unleashed during the next fifteen years of fast cataclysmic growth of India from now to say 2025 would have really mastered the process of taming (or creating anew) technologies and of leading innovation to meet the requirements of India and perhaps many other parts of the globe.

That grounding will lead to the creating of a large amount talent pool of persons who will spearhead the launching of Innovating India around 2025 leading several decades of innovation thereafter, as a part of our national developmental processes.

I hope and pray that many students of UTU presently you, and those who will pass out in future, will be a part of these ventures thus contributing to increase of your own wealth and quality of life. Also in the process you would lift the lives of many more presently less privileged Indians to raise themselves to much better standards of life. Also India and the globe would have mastered the process of protecting the local and global environment.

Thank you all.

