

## CAN THE MARCH OF TECHNOLOGY BE STOPPED

-Pradip Baijal

1. There have been many attempts to stop the spread of knowledge and the march of technology by those interested in status quo. When Gaileleo in 1613 endorsed Copernicus theory of 1543 that earth rotates the sun, the church imprisoned him and called him a heretic. Later, Gaileleo was recognized as the father of modern day Physics.
2. Much later, we in India, did not accept the wireless mobile technology as a viable technology in mid eighties and debated intensively during the years 1985 to 1995, whether this was right technology for India, while the rest of the world increased their teledensities using this technology. At that time, there was also no scope for innovation by any entrepreneur because the telecom network was government's monopoly. Never during this period, did any one deny that this was a cheaper technology but the incumbent who was comfortable with the slowly growing fixed lines and cost plus tariff did not use this technology. In monopoly networks, consumers never matter.
3. Finally, wireless for the last mile – but for fixed line phones, was introduced in the Bhikaji Cama exchange of Delhi by MTNL. So nervous were the incumbent and the Government with this technology that they ordered the mobile instrument to be locked, so that it could not commit the heresy of moving, even though the technology allowed it to move freely. Later, when private players protested that the fixed wireless was not growing, Government partially enabled the technology to have a movable instrument, but again locked it within a small area, called SDCA in telecom terms. But the technology could allow the instrument to move everywhere and one operator made it move all over the country by exploiting loopholes in the license. Consequently, the entire telecom sector landed up in Courts. The Regulator and the Government had two choices, either to get into perpetual litigation or to regularize Wireless in Local Loop (WLL) and allow it to be fully mobile, as the technology (CDMA) was capable of doing that. Of course, level playing field was ensured by imposing a rule that if WLL moved like a mobile, such operators would also pay the mobile entry fee, and even a fine for the breach of the spirit of the license.
4. Fixed technology of the incumbent had not paid any entry fee. We tried to discriminate against the mobile technology by placing artificial barriers of a huge entry fee, but technology cannot be suppressed and mobiles started becoming popular. However, it only came into full play when the entry fee regime was replaced by revenue sharing both for fixed lines and also for mobile. More growth took place when the regulation became technology agnostic and competition based instead of cost-plus.

5. To recall, the first fifty years of Indian Independence saw 0.04% growth in teledensity, the next five years of regulation and private sector entry saw a quantum jump of 15 times in growth to 0.6% per annum. When competition and technology agnostic access regulation was introduced in 2003, the real explosion took place and we reached 2010 target of 15% teledensity, in 2006. It is now recognized by all that we would far exceed 40-30% in 2010. Yet, had we allowed the technology to be constrained by the incumbents, we would never have seen such growth. We continue on such path in many sectors even today.

6. Converged License, Unified Licence, Next Generation Network (NGN) are names of the same futuristic development, which allows Voice over Internet Protocol (VoIP) in addition to many other services. So efficient is this technology that it delivers multiple services on the network, without additions of switches. These technologies are called 'disruptive' by Regulators across the world, because they enable the drastic and far reaching changes in the sector they are used and they don't care about the protection of the incumbent. The march of the technology cannot be stopped. Various countries all over the world are now adopting converged licence, unified licence, simple authorization regime, or next generation networks despite they being disruptive in nature – disruptive to the business case of existing operators.

7. Normally, the march of technology cannot be stopped for long. Indigo plantations were replaced by synthetic colours, but no one bothered about the disruptive nature of the synthetic colour technology on large number of indigo planters. Cable TV threw out all the VCR shops. Yet no one was bothered about the disruptive nature of the new technology. However, we are today protecting the telecom, internet, and TV operators by not moving to converged or next generation networks and are repeating what we did between 1985 to 1995 and even later to mobile technology. I recall in 2003, when I joined as Chairman, TRAI we had about 40 million fixed and 10 million mobile lines. After mobiles were allowed their full play and competition, the cheap delivery of such telephones led to the fixed telephones today being about 46 million but mobiles increasing to about 150 million. If the cheaper converged/unified/next generation technology is allowed, there would be a revolution in telephony, broadband, IPTV, particularly in rural areas all of us are so concerned about, the kind of which India has not seen before.

6. A word about 3G. We are short of 2G and 3G spectrum due to defense and security uses. One of the solutions is to move to 4G. This can be done if we adopt Next Generation Networks. To put it simply, the new network would be a common carrier on which service providers would deliver all kind of services. Fortunately for us in India, we have optical fiber spread out to 30,000 exchanges, almost one fiber end to a group of 20 villages. This fiber end can then be connected to all villages by 4G wi-fi and wi-max networks, on free spectrum. This would limit the requirement of scarce 2G or 3G spectrum. The problem of availability of 2G and 3G spectrum is mainly in large cities. There are no shortages in small cities and villages. We also know that most of the mobile calls in cities are made in buildings. If most of these calls could

be carried on the fixed line network thru' NGN deploying wireless in -building solutions spectrum utilization efficiency would drastically improve.

7. We in Government debated on the kind of technology that we should use in eighties and early nineties. The main argument in favor of Unified license is that the operators should be allowed to use any technology on a converged or authorization basis for delivery of any service so that the regime automatically throws up the best technology. Governments cannot and should not favor one technology or another and also not impose large entry fee on new or more efficient technologies.
8. There are other sectors also where the best technologies have not been allowed to enter or flourish by governments or regulators by either imposing uneven conditions or by not allowing fair competition between them. To give an example, super critical boilers with much higher heat recovery are increasingly being used for power generation all over the world. We have not moved to these boilers as the incumbent is comfortable with the old technology and gets all his payments on a cost plus basis. The recent example where the private players bid around Rs. 1.20 per unit for power supply against Rs. 2.20 per unit by the incumbent, has exposed the inefficiency of the cost plus arrangement. The rate of Rs. 1.20 per unit quoted by private player is based on new technology of generation and also of coal mining. The old order only protects the incumbent, mostly 'navratnas' and their profits at the expense of the poor consumers.
9. The civil aviation sector also used to protect the old and inefficient planes and practices of the incumbent. It is only when the private players came in; they used the most viable planes and practices. This led to severe competition in the sector leading to huge reduction in air-fares and massive growth in the sector. Surprisingly and after a long time, Railway fares were also challenged by the new order.
10. Of course, Regulations can suppress technologies for some time but not for long and state policy must encourage new technologies for the benefit of consumers.