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Behind India's rise as IT power lies 25 years of C-DOT

By Sam Pitroda

This month marks the 25th anniversary of what is now widely acknowledged to be India's first defining steps towards an information and communications revolution.

It was in August 1984 that the Centre for Development of Telematics or C-DOT was set up with the specific intention of indigenising digital switching technology to meet India's unique requirements.

At the celebratory level, all those who worked at C-DOT in one capacity or another have come together on the Internet to create a virtual community spread from America to Australia and India to Indonesia. Over a thousand professionals have interacted from all over the world to design a series of events to celebrate their work. This is a generation of young professionals who believed in themselves 25 years ago and focussed on creating something unique from scratch for the nation as opposed to merely copying western products from multinationals.

C-DOT was established as an independent society to help develop a series of digital switching products to meet Indian requirements. Then we had over two million phones for 750 million people. It used to take 15 years to get a telephone connection. In the short span of 25 years India now has close to 500 million phones. We are adding 10 to 15 million phones every month. And a telephone connection can be obtained on your way to buy grocery. C-DOT planted the right seeds for this information and communication technology (ICT) revolution in the country a quarter century ago. The spirit of private enterprise helped it grow to a substantial industry. Now is a good time to review and reflect on what was so unique about the C-DOT endeavour.

To begin with it was a big idea with an opportunity for generational change. It was an idea which could affect people in urban and rural areas in all walks of life and connect the nation in a very modern way. It was crucial that this big idea was articulated in a manner that would convince the political leadership of the day and compel it to commit to realizing that dream. It required political will at the level of then prime minister Rajiv Gandhi with national visibility, unconditional support and egalitarian management approach. It also required unconventional and selfless leadership at the helm of C-DOT with clarity, simplicity and values.

The concept was to build indigenous Indian technology for digital switching system with focus on rural connectivity, accessibility as opposed to telephone density, ancillary industries and young talent with new energy and new work culture, work ethics, work norms and work values. The overall strategy was to design, develop and manufacture products to suit Indian climate conditions, especially for rural exchanges without air conditioning at substantially lower costs and at the same time train human resource in ICT to manage, maintain and develop products for the future.

C-DOT made a public commitment to develop products in 36 months for Rs.36 crore. As a result of openness, transparency and public accountability C-DOT was fortunate to get substantial support from national and local media. Right from day one C-DOT focussed on public-private partnership with a clear understanding that the products designed by C-DOT will be manufactured by public and private companies. It will require support of the unions and new regulations. All of this was not possible without organizational innovation where hierarchies were systematically broken, young people were empowered with autonomy, freedom, and flexibility, to work long hours and give their best. The mood at work was upbeat with a mission to help build information infrastructure for India. Young people were systematically shielded from the day-to-day bureaucratic bottlenecks. It was their energy, self-confidence, hard work and can-do mentality which were the key to

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use their energy, self-confidence, have them and can be marketing, which were the key to delivering various products.

The first product was a small rural exchange to connect villages. Thereafter a small PBX was delivered for the business community. Then came a medium-sized 2,000-line digital exchange, a 16,000-line exchange and eventually a 40,000-line large exchange to meet urban needs. All of this was achieved with young talent whose average age was 23 years without any experience or background in digital communications technologies. Most of them were right out of colleges like IITs with no experience but a dream to help build the nation. Today over 20 million lines of C-DOT exchanges are in service. The rural exchanges were used to provide STD/PCO to masses, the privatization of telecom had little resistance in India.

C-DOT was essentially a bypass to the legacy system which was full of bureaucracy, vested interests, large unions, confused priorities and political interference. It was clear then that to plant any new ideas and initiatives in the Indian system, bypass was essential with catalysts to engender out-of-the-box thinking. If the same new experiment had been initiated within the Department of Telecom as one of the projects it would have been killed instantly. Rajiv Gandhi understood and appreciated the bypass mechanism to expedite the process of development. In fact, the Technology Missions that he launched related to rural drinking water, immunization, literacy, edible oils, dairy development and telecom were essentially a bypass mechanism with measurable milestones, deliverables, clarity and mission directors to help accomplish specific objectives with the support of the central and state governments.

Twenty five years ago the system was very resistant to new ideas from outside. The C-DOT experiment was seen with a great deal of suspicion and there were many multinational lobbying groups constantly trying to kill the initiative. C-DOT was seen by multinational companies as a direct threat to their business interests in India. It survived due to the political will of the prime minister and it got accomplished simply due to the energy of the young.

It is gratifying that despite many ups and downs, C-DOT stuck to its mandate steadfastly and created telecom infrastructure in areas of the country which suffered from woeful neglect until then. In many ways C-DOT became the signature project of India's quest for modernization and infused in a technologically diffident nation new vigour. C-Dot was also an experiment in problem solving to make generational change with scalable and sustainable systems to improve lives of the masses in India. It is for technology historians to make a definite judgement but in my limited, and admittedly subjective, view C-DOT stands at the vanguard of India's rise as an information and communications powerhouse. The C-DOT journey is a tribute to Rajiv Gandhi and the energy of the young engineers. It is also a tribute to the system that allowed the bypass to give new life and new meaning to connecting India. However, we have a long way to go. The next big challenge is to benefit from the ICT revolution to improve education, health, agriculture, financial services and governance to bring growth and prosperity to the doorsteps of the people at the bottom of the pyramid.

(Sam Pitroda is chairman of India's Knowledge Commission. He was head of C-Dot and chaired the various technology missions set up by late prime minister Rajiv Gandhi. He can be contacted at sam.pitroda@c-sam.com)

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By: Raghavendra

On: 14 Aug 2009 02:55 am

This is simple nonsense from Sam Pitroda. Much of Burgeoning IT middle class or IT entrepreneurs would not have even heard of something called "C-DOT". It is very cheap to claim credit for yourself out of others sweat and blood. Sam Pitroda needs to stop Boasting

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