Empowering India
Through Public Information Infrastructure and Innovations

Talk by

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on Public Information Infrastructure and Innovations

Hon. Deputy Chairman of Rajya Sabha, Shri Rahman Khan, Hon. Members of Parliament, Shri Viswanathan, Secretary-General, Lok Sabha, Ladies and Gentlemen:

It is indeed a special privilege to have this opportunity to share with you some of the works that we are trying to accomplish on Public Information Infrastructure and Innovations. I remember coming to Parliament Annexe to give similar lectures in the mid-80s. It is good to be back almost 25 years after, and it is good to see so many friends. I am delighted to be here and I want to first thank you all for coming.

We started in Rajiv Gandhi's time as a small little exercise to work on telecom with focus on Indian talent, rural telecom and indigenous development. Our dream was to connect India and Indians. I remember then we had two million telephones and I used to talk about 40 million telephones at the end of the century. People used to laugh at us asking: Are you crazy? How can you go from two million phones to 40 million in ten, fifteen years? We are all delighted to see that today we have 750 million to 800 million phones and we are adding ten to fifteen million more, month after month. Because of this groundwork today we are a nation of one billion connected people. A lot of people have participated in this endeavour -- private entrepreneurs, policymakers, administrators, scientists, engineers, telecom experts, software people. But it has been a 20-year journey. Now that we are a nation of a billion connected people, how do we think about the future? I think that is the real challenge from my perspective today. Do we go and do exactly the same thing we have been doing for a long time or we take a note of

a fundamental change in Indian infrastructure? The change that gives us connectivity is critical to planning new strategies.

How do we use this competitive advantage that we have all of a sudden in front of us? And that essentially relates to building information infrastructure of tomorrow and innovating in many different areas to really expedite the process of modernisation and development; reducing disparity between the rich and the poor, the urban and the rural, the educated and the uneducated, and really responding to the needs of the young in this country. We all know we have 550 million young below the age of 25. How do we create jobs, opportunities, education, infrastructure for them so that they in turn can have better prospects, future growth and future prosperity?

So, I would first take about five to ten minutes to give you an overview of public information infrastructure and then spend about five to ten minutes on innovations, and then open up for discussion.

Today we have connectivity just for voice but we need to move to the next stage of connectivity which will involve data. Today, even though we have the Right to Information, I believe a lot of our information is locked up in files. Information is not available in the format that we need. We need to digitise a lot of our information and make it available in real time to essentially meet the needs of the 21st century vis-à-vis the RTI.

Traditionally, we think of democracy in terms of judiciary, in terms of executive, parliament and all. The key to democracy in the future is going to be information and access to information. How we democratise information in the country is a challenge for the next decade. To do that, we need to really focus on data and applications. Voice is over. We have connected this country so we could talk to each other. But now we need to connect this country so we could share data, information and develop relevant applications for a lot of our needs not only related to governance, public delivery of services, financial services, but also for education and health.

We have several programmes underway. The first one is called National Knowledge Network. Cabinet has approved Rs.7000 crore to connect 1500 nodes with 40Gbps bandwidth which will connect all our universities, all our R&D labs, and majority of our big libraries to really improve collaborations and exchange data. This task is being led by Dr. Chidambaram, helped by Dr. Gairola and others from the National Informatics Centre (NIC). We have already started building this network. We have over 200 nodes working. We have all the IITs and IIMs and others connected, including CSIR labs. This is critical since all research tomorrow will require more collaboration, and require more multidisciplinary approach. And it is happening faster than ever before.

We hope to accomplish this task in the next 18 months, which is going to be a huge competitive advantage in our research. We have already connected this network to international links in the European Union (EU), the US, Japan and Singapore. A lot of our professors and scientists are already using this network for modelling, virtual lectures, and for computation activities. In addition to this we are working on a plan for connecting 250,000 Panchayats as well as 2500 municipalities to fibre based broadband. We have already connected almost all of the municipalities through optical fibre. We want to connect 250,000 panchayats in the next two to three years. The funding needs would be met through existing USO Fund.

We believe once we connect panchayats to optical fibre we will be able to then connect our schools, our hospitals and deliver better public services to the citizens of India. We will empower panchayats with the right kind of software and applications , training and infrastructure. We will have better information on infant mortality, female literacy, and NREGA programme, pension programmes. We will be able to deliver financial services. Micro payments, micro transactions would be feasible once we connect all of the 250,000 panchayats. This will lead to improved governance, accountability and transparency.

This programme is possible because we already have a million kilometres of optical fibre laid out by our telecom companies. A lot of this fibre is under-utilised because when we laid this fibre we assumed a capacity of 50 MB and today you can get 100 GB by upgrading terminal equipment. So, my estimate is, today we are probably utilising less than five per cent of this fibre. This is a huge asset. It is like gold hidden in the ground. And we want to light it up and use this for data transmission. Today when we talk of data we automatically assume video streaming. High capacity transmission is required for video streaming and fibre based broadband will enable this.

So, once we get the broadband connectivity we need to then create multiple platforms. As you know, Mr Nilekani is working on the UID platform which would essentially give us the ability to identify securely every human being, every resident in the country so that services can be delivered in a targeted manner. On top of this we want to build a GIS platform. This platform will identify every physical asset in the country like train stations, hospitals, schools, government buildings, ports, roads, trees, forests, etc which will be a valuable input in informing policy decisions. This activity is going to be led by Dr. Kasturirangan. He has spent a lot of time in putting together a package on it and hopefully this will be launched soon. Once we have that, we will be able to create a nationwide platform for GIS.

On top of that we need a platform for various applications, like driver's licence, food distribution, NREGA and many of the government programmes like transport, income tax, etc. Under the leadership of Dr. Gairola and his team at NIC, there 10,000 software people today working on a variety of applications. On top of this we need applications for e-procurement, payment, and ultimately lots of portals in the country to provide information and network people.

Once we build these open platforms, a lot of our young people will figure out how to use it in the future which will unleash huge growth opportunities. So,

our task on public information infrastructure is to create this connectivity, and facilitate these applications and platforms. This is a huge task.

When President Obama was here, I had an opportunity to explain to him about this work and he was very impressed with our vision. A month ago, I was at the European Union and met with many of their experts. And they cannot comprehend that we are in the process of building a very unique information infrastructure. We have an advantage because we are starting in 2010 and have less legacy systems. For instance instead of multiple data centres, as is the norm in various countries, we want only 4 data centres. We want cloud computing; and we have new tools, new technology to do these things. We believe we have a huge competitive advantage because we are launching it now, and not in 1980 or 1990. This public information infrastructure would be geared towards development; delivery of public services, financial services, meeting our requirements on food security, nutrition security, on education, health, NREGA programme. It will improve productivity, and efficiency of these programmes; it will stop leakages and it will really go a long way in improving overall efficiency. For these new tools to deliver benefits we also need to re-engineer some existing aspects. For instance, we need to really computerize the *nada-wali* file; everything today in government still works on this paper file, which moves within government offices. So, we are launching a programme called e-office. This programme is already being tried at the Cabinet Secretariat, PMO, Planning Commission, and others where all filing would be electronic. It would be difficult for some of the old-timers to get used to it; but we believe that it is going to be the key. Simultaneously, we are also computerizing courts; we have 32 million court cases pending. It takes us 15 years to get justice today. We want to computerize all court cases and in the process use ICT to reduce time to justice from 15 years to three.

So, there are lots of other programmes which dovetail to really create proper public information infrastructure of tomorrow. The journey is just beginning. It will take us a decade. We have a lot of young talent to be able to do a

lot of this stuff now. So, the public information infrastructure vision is all in place. We have articulated this vision. We have been carrying people with us; we have some approvals; we need some more approvals; but we need your input and advice while going forward. How do we use this infrastructure for all of us? This is the beginning of a dialogue. We hope that we can continue this dialogue over a period of time, but we also believe this infrastructure will not be effective if we do not focus on innovations.

We need to innovate; we cannot go on doing things the way we have been used to doing. I have said many times in the past that we have at times 19th century mindsets, 20th century processes, and 21st century needs. So, how do we think about innovating? The Prime Minister has set up a National Innovation Council to create an innovation eco-system in the country. Mobilizing innovations in a country of 1.2 billion people is not easy. We have decided to focus on five aspects of innovations. One - view innovation as a platform. Innovation is not about laboratories, scientists, engineers, patents, tinkering with some prototypes. Innovation is a platform which requires focus on innovating in governance, processes, education, health, science and technology and moving beyond just R&D. We need to innovate in every walk of life. We need to re-engineer our processes. How do we get admission in schools? How do we get a birth certificate? How do we obtain land records? All of this needs to be re-assessed.

So, one innovation is the platform; two, we want to focus on innovations for inclusive growth. We do not need to worry about innovations for the top of the pyramid. The rich will take care of that. We need to really focus on bottom of the pyramid. I have been saying for the last 20 years that the best brains in the world are busy solving the problems of the rich, who do not really have the problems to be solved. As a result, the problems of the poor do not get the kind of attention and talent we need. So, our focus is to take our talent and focus on the bottom of the pyramid, which includes thinking about affordability, sustainability, scalability, low cost solutions, *jugaad,* and lots of other things.

The third area is to create an eco-system. We need to create the right eco-system to encourage innovations, which include venture capital, private equity, risk taking abilities, patents, copyrights, trade marks, education on innovations, linkages with university system and other interventions. Fourth, we really need to focus on drivers for innovations. What drives innovations in this country? I am saying that we need to focus on things like durability versus disposability. We do not want to design disposable products; we want to design durable products; we want to worry about green solutions, low power consumption. These are all the drivers for us.

Finally, we want to increase discourse on innovations. We want systematic debates, discussions and discourse to really develop the ability to question. I think, in our system, we do not have enough ability to question. Unfortunately, right from our childhood, our parenting is such that we are not encouraged to question. So, we want to create public discourse and debate on innovations.

The National Innovation Council met three times, developed consensus on these five key elements and also decided that we should set up State level Innovation Councils. So, I have written a letter to all Chief Ministers to set up Innovation Councils in their States. I encourage you, as Members of Parliament to tell your Chief Ministers, when you go back home, to see if they would push this since each State has its own core competency. Then, we have written to all the Ministers in the Central Government to set up Sectoral Innovation Councils, on niche areas such as textiles, bio-tech, nanotech, cancer, diabetes, wireless. We want to set up 100 Innovation Councils across verticals. In each of these Councils, we want domain experts, knowledgeable people with 10, 15, 20 years' of experience in their respective fields because they know what needs to be done, and ask them to prepare a roadmap because the President of India has already talked about it: that kind of Innovations needed for this decade– 2010 to 2020. We want at least 2,000 key people in the country, talking about innovations, discussing, debating and working on innovations. Then, we would get the roadmap that we

need. So, besides Sectoral Councils and State-level Councils, we also feel, we need a big fund to promote inclusive growth-based innovations and enterprises.

We are aiming to create a billion dollar Innovation Fund, with seed capital from the Government and by raising capital from private sector to really promote inclusive growth based innovations. We have also identified 40 clusters across the country where innovations would be seeded. Today, I had a meeting with 60 people on innovations for clusters. These are industry clusters like the diamond cluster in Surat, textile cluster, leather cluster and pharmaceutical cluster. These are clusters where a couple of hundred thousand people work , hundreds of industries come together, but they do not focus on innovation enough. Further, the universities in the diamond cluster do not work on diamond research to develop right synergies. They work on some leather research. We want to bring universities closer to the needs of that cluster. We spent about three to four hours with them today. It was a very interesting meeting. A lot of people came from clusters all over the country. And we want to bring university and cluster people together. We want to give them some help in terms of innovation tool kit, incubation, education and give them the right kind of help they need to seed innovations. Ultimately they have to do it; we cannot do it for them. But we could be catalysts and provide the right support system. We are creating innovation portals. So, we are doing a lot of interesting things. But it is too early to feel the impact.

Our job is to make innovation a movement in the country over a period of time. So, all of us begin to think. I need to innovate myself as an individual; I need to redefine. I always give this example that I am the son of a carpenter. I was told that you can only do carpentry. I got education and redefined myself. I became a computer engineer, telecom scientist, came back to work on policy level work. I again redefined myself. I think we have to continuously redefine ourselves to be innovative. That is the starting point. Then we redefine our institutions; we

redefine our governance model, our products, our services, our companies, our organisations. That is a challenge that each one of us will have to take. We are too locked up in the way things are today. I tell you that everything that we do today is obsolete, almost everything. If we do not start with that, we will never innovate. I see day in and day out people doing the same old thing and the same old way of doing it. In the 21st century, that will not take us anywhere. We need to be globally competitive. We need to create new jobs for our people. We need new products, new services. If we are really going to be a major player in the world, we have got to innovate. So, I think, Public Information Infrastructure and Innovation go hand in hand.

If we can get people sensitised in the next five years and give the right infrastructure, I think we are going to build a new India, an India that we all would be proud of. We have our differences but we have to move beyond those to work together. I have got to focus on what I know how to do. I cannot solve all the problems. I am not capable. When I came here in the eighties to work on telecom, people used to say that telecom is not important. It is only for the rich and the elite. What is important is water and agriculture. My answer then was: I do not know how to fix water; I do not know anything about agriculture. Let me work on telecom. Today I feel that the need of the hour for people like me is information infrastructure and innovations. I believe that these two will take us a long way, not that it is going to solve all of India's problems. But it will definitely help us.

With this, I want to once again thank you for your time and your patience.