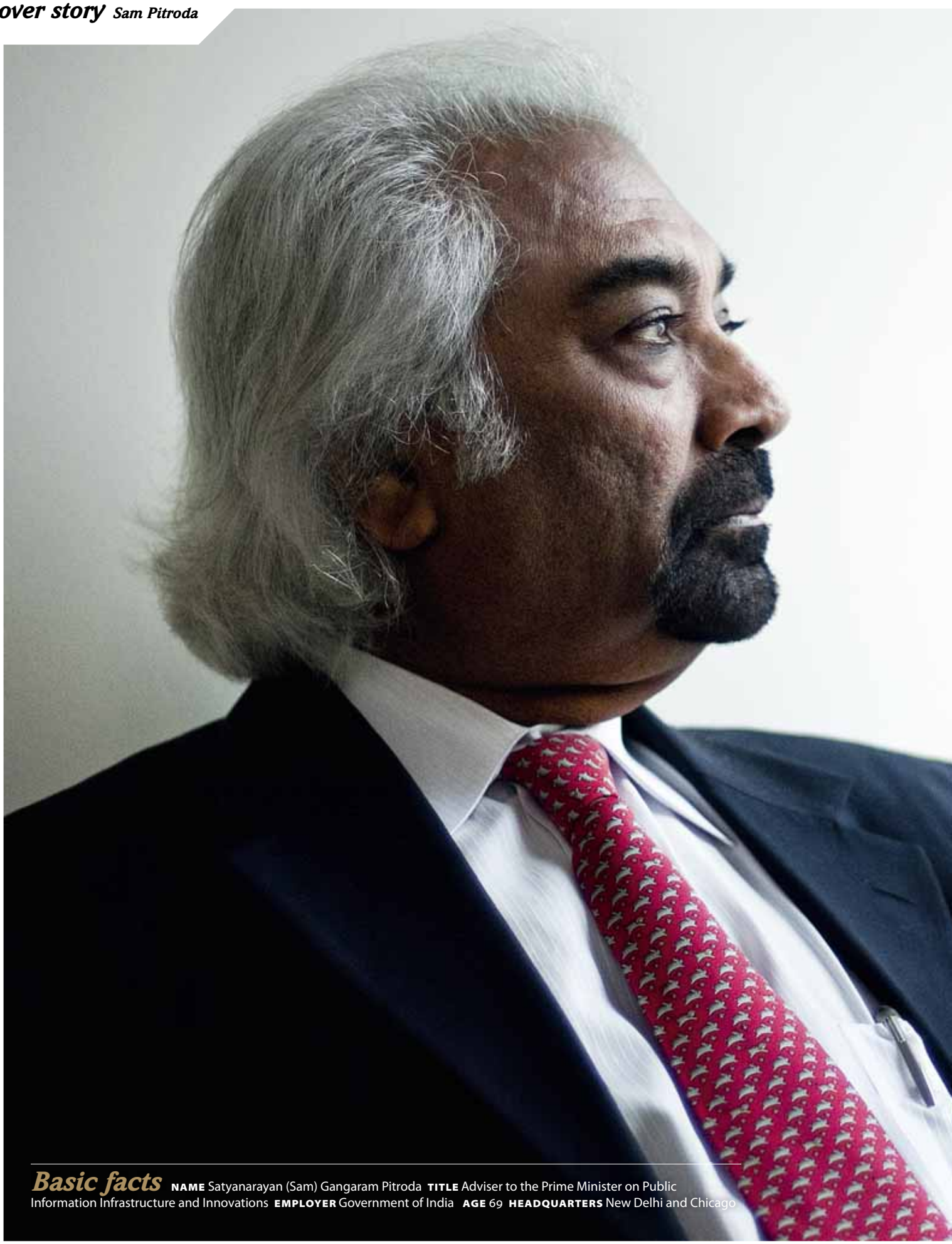


Basic facts **NAME** Satyanarayan (Sam) Gangaram Pitroda **TITLE** Adviser to the Prime Minister on Public Information Infrastructure and Innovations **EMPLOYER** Government of India **AGE** 69 **HEADQUARTERS** New Delhi and Chicago

Building a better India

Western development models are not sustainable, scalable or desirable, says **Sam Pitroda**, a top Indian government adviser and the father of the Indian telecom revolution. Instead, he says the answers to India's challenges lie in the **"Gandhian model"** of development. ►

TEXT Nathan Hegedus
PHOTOS Chris Maluszynski

Pitroda on… **Indian versus Chinese development**

Culturally, the two countries are **very different**. India is going to focus on **democratizing information**. India is going to focus on **young talent**. The Indian innovation model is very different.

SAM PITRODA is the man who brought telephones to rural India, essentially connecting India to itself.

Today, at the age of 69, this son of a carpenter remains tirelessly true to a vision deeply rooted in his familys devotion to Gandhi. As influential as ever in India civic life, Pitroda preaches that India must drive its own open-source tech revolution, one based on sustainable and rural-based values. In its latest form, he describes it as thedemocratization of information through connectivity.

"We are a nation of over a billion people and we cannot afford to follow a short-term model meant for a population of less than 250 million people," Pitroda said at a recent conference on Gandhi and connectivity.

But Pitroda is not simply a visionary technocrat grounded in Gandhian philosophy. He is also a gifted electrical engineer with more than 70 patents to his name. Even now, talking to Ericsson Business Review, he sits up straight and says with a says with a spreading smile that he can most certainly "still do the bits and bytes."

So it is no surprise that when he considers his career, he uses the language not of a politician but of an engineer and speaks of "the life cycles of Sam Pitroda" as if he were one of the groundbraking digital switches that he once developed as a young immigrant in Chicago.

PHASE ONE: STARTING OUT

One of eight children, Pitroda was born and raised in Titilagarh in the state of Orissa, a deeply poor town with no running water or electricity and certainly no telephones. His father, an immigrant from the faraway state of Gujarat, was a small-time lumber dealer with a drive for his children to become something more.

"In those days, he used to sell nails to the British," Pitroda says. "But he couldn't speak English. So he felt inferior to them. He said, when his children grew up, that he wanted them to speak English."

And then there was Mahatma Gandhi – a fellow Gujarati and a central figure for both India and the Pitroda family.

"When I was growing up, Gandhi was always in our midst," Pitroda says. "I still remember when I was a little kid, six years old, I was playing outside my house, and my father came in and said Gandhi had died. I didn't quite understand it. Then everybody in the household had to take a bath, as if someone in the family had died.

"So we knew that he was 'part of the family.' He taught us… Make sure you do the right things. So a sense of sacrifice, love for everybody, truth, simplicity: all these things are embedded in me, in my lifestyle."

But there is another side to Pitroda: the American side.

In 1964, inspired by the romanticism in US President John F. Kennedy's speech about putting a man on the moon, Pitroda – newly graduated with an MSc in Physics and Electronics – boarded a boat, the start of a long journey away from India and to the US.

It was in the US that Pitroda made his first phone call, home to India, and it was in the US that he got a degree in electrical engineering. He found a niche in telecom in Chicago, working with digital switching for the US telecom company GTE. Later, after his father told him he was too young to get into the habit of working for other people, he started his own company with two partners.

Around this time, Pitroda was also editing an issue of an IEEE magazine that focused on telecom development in the third world.

"I said, 'Don't focus on telecom density, focus on accessibility,'" he says now.

Sam Pitroda: walking the telecom talk

SAM PITRODA SAYS "150 percent" of his focus is on India and innovation, but it is important to remember that this is a man who can back up his tech talk. He holds more than 70 telecom and technology-based patents, and his visionary mobile-wallet technology may soon be in millions of smartphones.

In 1994, Pitroda had recently returned to the US after living in India for most of the previous decade. He noticed his wife writing personal check after personal check to pay their household expenses. Then he considered all the other daily financial tasks that could even then be carried out online, and he came up with the idea of a digital wallet, complete with "ID cards," "money," "receipts" and branded "credit cards."

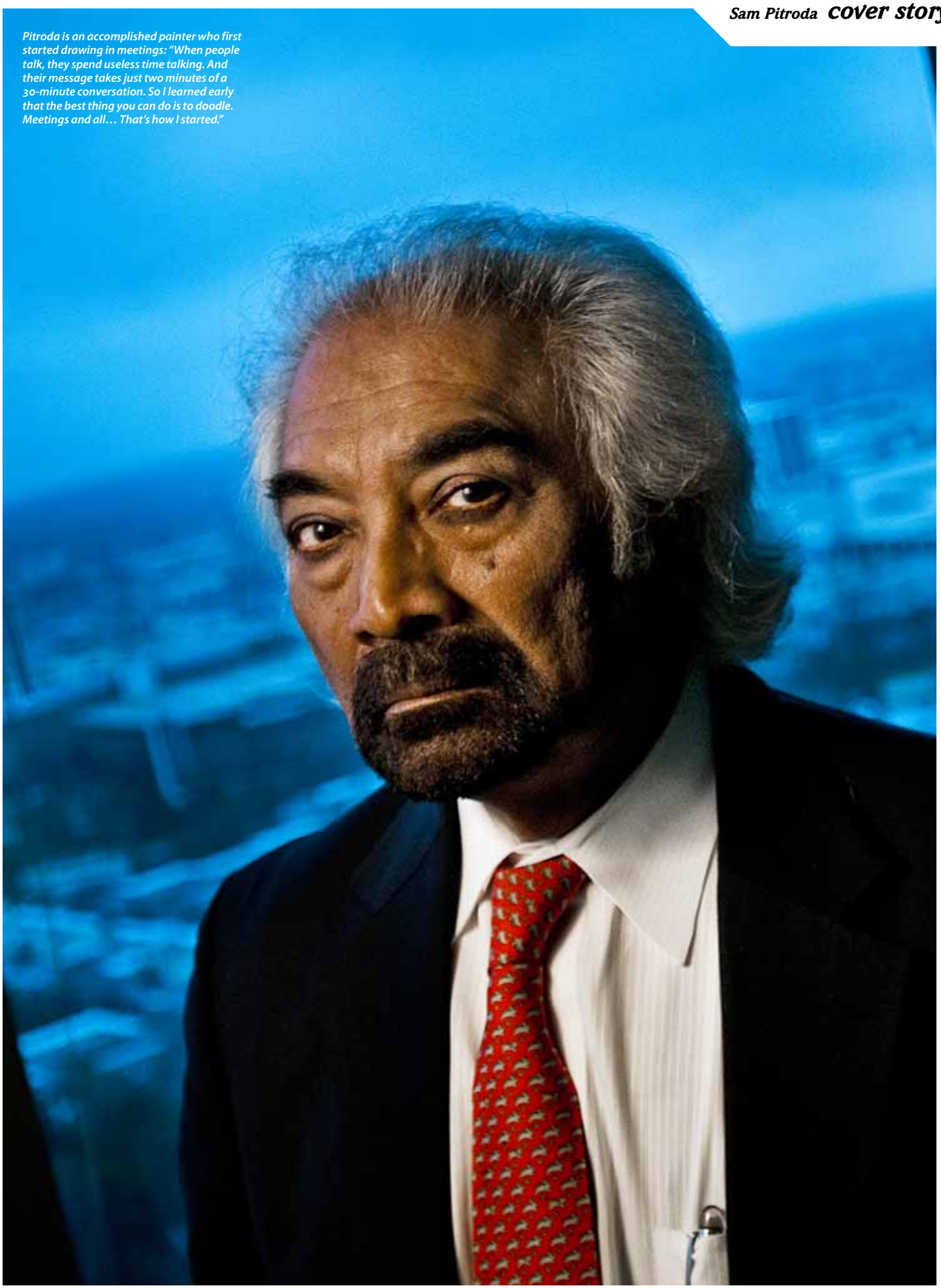
Pitroda patented his mobile-wallet idea in 1994, founded a company (C-SAM) to develop it in 1998, and later wrote a book on mobile money. He is no longer the CEO of C-SAM, but the business has thrived as the concept of mobile payments – and the technology surrounding it – have finally caught up with his vision.

"It was too far ahead of its time," he says of his initial idea. "Now is the time to build (on) it."

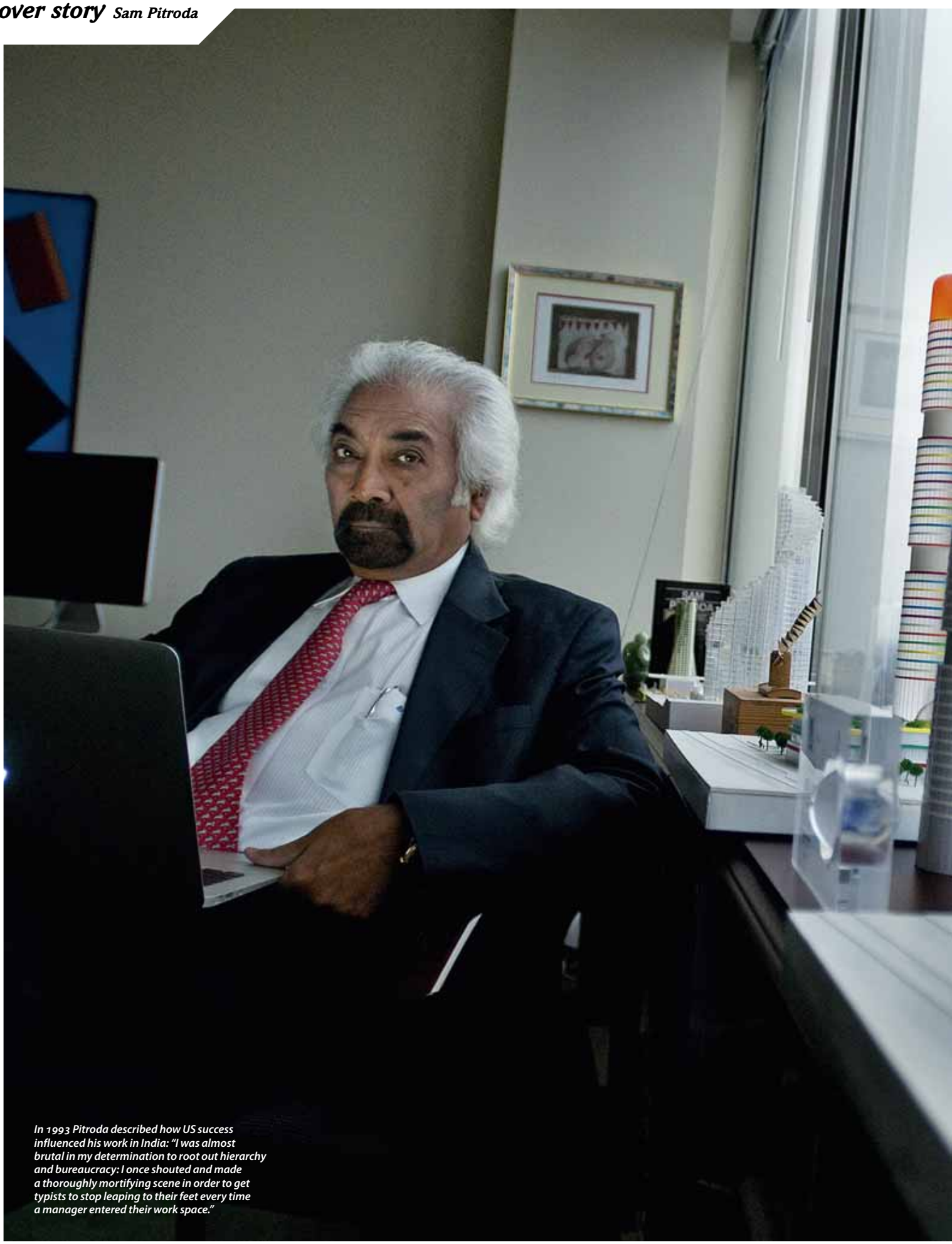
C-SAM'S FIRST MOBILE wallet was launched in Japan in 2002 and has since been used in the US, China, India and Mexico, among other places. And the company keeps gaining new, ever bigger customers. In August, 2011, Isis – the joint venture formed by AT&T Mobility, T-Mobile USA and Verizon Wireless – adopted C-SAM's platform to provide its mobile-wallet service.

Yet the mobile wallet is just one of Pitroda's many innovative ideas. In the 1970s, he created the 580 DSS digital switching system, which made him a millionaire. During the same period, he also patented an idea for a personal electronic diary. In the 1980s, this patent was incorporated into the popular Casio Digital Diary, a precursor to the personal digital assistants of the late 1990s and the smartphones of today. In the past five years alone, that patent has been referenced by the likes of IBM, Microsoft and Nokia.

But Pitroda's most fun idea was probably Compucards. Developed in 1983, this is a deck of cards with binary numbers (1, 2, 4, 8, 16…) for the computer generation. Anyone who reads the instructions closely can use the cards to play family games such as poker and rummy. The joker is a hairy software bug complete with legs and antennae. But the most interesting card is probably the king, who appears to resemble none other than Sam Pitroda.



Pitroda is an accomplished painter who first started drawing in meetings: "When people talk, they spend useless time talking. And their message takes just two minutes of a 30-minute conversation. So I learned early that the best thing you can do is to doodle. Meetings and all… That's how I started."



In 1993 Pitroda described how US success influenced his work in India: "I was almost brutal in my determination to root out hierarchy and bureaucracy: I once shouted and made a thoroughly mortifying scene in order to get typists to stop leaping to their feet every time a manager entered their work space."

Background check

- ***2010–present:*** Government of India, Adviser to the Prime Minister on Public Information Infrastructure and Innovations
- ***1998–present*** – C-SAM, founder, former CEO and current Chairman, Chicago, US
- ***2005–2009:*** Government of India, National Knowledge Commission, Chairman, New Delhi, India
- ***1993–2005:*** started a series of business ventures, including World-Tel Limited (an International Telecommunication Union project), and served on several United Nations commissions
- ***1987–1991:*** Government of India, Adviser to the Prime Minister of India, with the rank of Minister on national technology missions, New Delhi, India
- ***1987–1991:*** Government of India, founder and Head of Indian Telecom Commission, New Delhi, India
- ***1984–1987:*** Centre for Development of Telematics, founder, New Delhi, India
- ***1979–1983:*** Rockwell International, Vice President of Advanced Technology and Engineering, Chicago
- ***1974–1979:*** Wescom Switching, founder, Chicago, US
- ***late 1960s–early 1970s:*** General Telephone & Electronics, various engineering positions, Chicago, US
- ***1966:*** MSc in Electrical Engineering, Illinois Institute of Technology, US
- ***1964:*** MSc in Physics and Electronics, The Maharaja Sayajirao University of Baroda, Gujarat, India

Pitroda on… **the future of telecom**

You can't say telecom like we did in the eighties. It is more pervasive. **You have to talk about the role of telecom** in research. You have to talk about the role of telecom in medicine. You have to talk about the role of telecom in education and the role of telecom in government.

Nobody paid attention to his articles, he says. But if they had, it would have been no surprise when, after he sold his digital switch business to Rockwell International in 1979 and made millions, Pitroda turned back to India to put his words into action.

In a Harvard Business Review article in 1993, Pitroda said that he had dreamed all his life of wealth and success, but that after he sold his business, he was suddenly confronted with the fact that he had walked out on India. The selfishness of his success set him off in pursuit of another American dream, he said: the exploration of a new frontier. The frontier? Using telecommunications as a bridge between the first world and the third.

PHASE TWO: GROWTH

On his first trip to Delhi in the early 1980s, Pitroda tried to call his wife in Chicago. It took four hours. So with a mixture of what he calls "arrogance and ignorance," he decided then and there to "fix" telecom in India.

"I saw that IT and telecom could change the face of India," he says. "I just saw it. Indian culture is a rural culture. India was disconnected. If I could just connect everybody … Maybe it was because I was poor. Because I lived in a village. If I had been from Mumbai, it would have been very different."

What follows is Indian political legend, as the man The Economist later called "the Indian with the long hair and the manner of an American superbrat" fought to get an unthinkably long one-hour meeting with Prime Minister Indira Gandhi. After eight months, he got the meeting and, most importantly, he also met Rajiv Gandhi, Indira's son, who would become prime minister in 1984 and Pitroda's greatest ally.

Over the following years, in a series of jobs culminating in a minister-level technology mission, Pitroda created the infrastructure that placed now-famous yellow phone boxes in almost every Indian village. It is this achievement that garnered him the unofficial title of the father of Indian telecom. It also put him at the center of debates about whether or not technology was a luxury, about the balance between the state and the free market, and about whether it was possible to move India forward without the help of big multinational corporations.

Pitroda believed fervently that technology was as crucial a developmental tool as education or clean water. And he used his faith in connectivity to push for core Gandhian tenets such as indigenous development and an emphasis on rural development.

For this, he was branded an Indian nationalist and an enemy of foreign firms.

"Look, we took Intel's processor," he says. "That was collaboration. We took software from other companies. We took Motorola's switch. The idea was 'Don't give me lock, stock and barrel products. Give me components.'

"It was not homegrown just for the sake of homegrown. If we had not used the homegrown technology, we would not have the IT business we have in India today."

Pitroda and his team soon had phone booths rolling out to one village a week, then to a village a day, then to three villages a day. There are more than 600,000 of these pay phones today. But then Rajiv Gandhi lost an election in 1987, and while Pitroda stayed at his post, things got tougher. He was accused of corruption, and there were threats that drove his family back to the US. He had a heart attack and a quadruple bypass. Then in 1991,

Pitroda on… **the impact of moving to the US as a young man**

It really opened up possibilities. I could talk about this for hours… For example, **the most fascinating thing for me was the door knob,** because in India, we had only this latch.

Then I saw a revolving door and I thought, "What a good idea!" Then I saw a post-office box in the US and said, "What a design!" I had never thought that way. There had been nothing in my village. Nothing.

while campaigning to return to power, Rajiv Gandhi was killed by a suicide bomber.

"It was the biggest shock of my life," Pitroda says. "I just didn't know what to do. Went to the house, thought about what to do next, and realized that this phase had to end in life. I had to go back."

Plus, after years of working for a token salary of USD 1 per year, Pitroda was out of money. Yet he refused to do business in India.

"I didn't want to work in India in telecom," he said in an interview with India's Skoch Consultancy Services. "I didn't want a spectrum license… didn't want people to say: 'Oh, that's why you did all this stuff. So that when the right time comes you cash in.' I didn't want them to say: 'He had this master plan.'"

He went back to Chicago sick, broke and on a tourist visa.

PHASE THREE: MATURITY

During the rest of the 1990s, Pitroda looked after his business interests and made some more money. He put his kids through college and stayed close to his dying mother, who had moved to Chicago.

But India and public service never stopped calling to him and, in 2004, he was named head of the National Knowledge Commission. From that point on, Pitroda has been a whirlwind, advising and working on everything from fighting hunger to reforming the railways, to reorganizing state telecom operator Bharat Sanchar Nigam Ltd (BSNL).

Today his official title is Adviser to the Prime Minister on Public Information Infrastructure and Innovations, though he is most often referred to in the Indian press as a "technocrat." His position allows Pitroda to operate freely across the political and economic spectrum, as he relentlessly pushes his agenda to lift hundreds of millions of people out of poverty and to find jobs for the hundreds of millions of Indians under the age of 25.

"Who am I to do it? I don't know," he says. "Do I have the authority? I don't think so. But I try to get it done. That's the advantage (of my position). A lot of times, people ask: 'Why don't you become a minister?' No, I don't want to be a minister. That precludes my entire flexibility to operate."

He still believes in centralization as a precondition to decentralization and in building a scalable India-centered ecosystem. And he still gets exasperated at being tagged as an anti-colonial leftist.

"We need to centralize the thinking in setting up infrastructure," he says. "That is very different from saying, 'Centralize everything.' But the kind of infrastructure we are trying to build… no private enterprise would ever build it. It's not viable. You have to do it from the top because it is a national infrastructure."

Yet he insists there remain great business opportunities in the Indian market.

"Where is the money in telecom in India? Applications. Local applications, local language, local content. There is a huge opportunity in applications, applications, applications."

He has big numbers to match his big plans. The government is working to connect 1,500 key nodes – libraries, universities and research facilities – with high-speed fiber. There are plans to connect 250,000 local governments with fiber. In January he announced a USD 20 billion government investment in creating an "information highway," including USD 6 billion for a national fiber-optic network.

At the 2011 World Economic Forum, Pitroda talked about how Mahatma Gandhi's dream of the development of the villages and decentralization had remained only a dream because the "information element" had been missing. But now, finally, India had built the tools to realize Gandhi's dream.

PHASE FOUR: THE NEXT STEP

Even after a fight with cancer and a second heart attack, Pitroda is busier than ever, his life reduced to a transcendent simplicity of work – now in Chicago, now in Delhi, now at a conference in Oslo, Norway.

The new plans keep coming too. Now he wants to build an indigenous hardware industry that would match India's strength in software. Otherwise, hardware imports could someday be more costly than petroleum, he says. Now, since Indian companies have missed the 4G opportunity, he says, they need to get a jump start on "5G" Gigabit Passive Optical Network (GPON) technology.

"I am Gandhian in many ways," he says. "I don't have personal needs. I don't go shopping. I don't have my own bank account. My wife takes care of that. If she buys me new shoes, I wear the shoes. If she buys me a new shirt, I wear the shirt. I don't give much thought to these things. They don't matter."

For Pitroda, being Gandhian goes far beyond studying or emulating Gandhi himself. He doesn't like to talk about Gandhi as a person. It is more about asking the bigger questions, such as "How do I run my life?"

This brings him back to his childhood in Orissa, back to the focus that has brought him so far and back to the long-term vision he has for a prosperous and sustainable India. It will not be easy to achieve this vision, he says. But it must be done. And who better to construct this future than the son of a carpenter, a man who builds things?

"Technology is just a tool. At the end of the day, I am the son of a carpenter. I look at tools." ●

"When I came back from the US (in the 1980s), I had made money, so I used to dress very nicely," Pitroda says. "After about three months, I realized my clothes were intimidating. So I said, 'Trash all these American clothes,' and got some visibly Indian-looking suits stitched."