



INNOVATIONS FOR SUCCESSFUL SOCIETIES

MODERNIZING THE STATE, CONNECTING TO THE PEOPLE: BIHAR, INDIA, 2005 – 2012

SYNOPSIS

In November 2005, Nitish Kumar became chief minister of one of India’s poorest states. The third-largest state by population, Bihar lagged behind other states in growth and development but scored high in corruption, lawlessness, and dismal service delivery. Mismanagement of financial resources, obsolete methods of data entry and reporting, a low-skilled workforce, insufficient transparency, and scarce accountability hindered service delivery. As head of state government, Kumar launched a series of reforms that applied information and communications technology to streamline operations, boost revenues, and improve the government’s responsiveness to citizens’ needs. By 2012, Bihar had earned national and regional acclaim for its technology-related gains, and the government of India recognized the turnaround through e-governance awards. Kumar’s efforts earned him the nickname Sushasan Babu, or Mr. Good Governance. Still, some reforms did not go far enough, and significant limitations remained: lack of integration among information and communications systems prevented proper coordination across departments; civil servants did not embrace all technology-related initiatives; and lack of electricity and Internet connectivity in many areas prevented citizens from taking full advantage of the services.

Juliette John drafted this case study in May 2014 while at Princeton University’s Woodrow Wilson School on leave from the UK’s Department for International Development. The case study was updated by Rushda Majeed and Pallavi Nuka following interviews conducted by Rushda Majeed in Patna, Bihar in August, 2014. Three separate ISS case studies—[“Coalition Building in a Divided Society,”](#) [“Clearing the Jungle Raj,”](#) and [“Reviving the Administration”](#)—outline Nitish Kumar’s broader efforts to build a coalition for reform, improve law and order, and resuscitate Bihar’s administration, respectively.

INTRODUCTION

In 2014, Nitish Kumar recalled his party’s 2005 election victory, which installed him as chief minister of India’s state of Bihar. “That evening, people asked me, ‘What is your first priority?’ I said, ‘Governance.’ They then asked about my second priority, and I said, ‘Governance.’ They

asked about my third priority. I said, ‘Governance.’”

The 54-year-old Kumar had campaigned on a platform of clean and effective governance in a bid to dislodge a rival party Rashtriya Janata Dal, which had been in power in Bihar since 1990. His electoral platform appealed to many of the state’s

83 million people who were unhappy with an unresponsive government and unreliable public services. After a failed attempt to form a government in February, when no party or coalition had a clear majority, the state briefly fell under direct federal rule, but Kumar emerged victorious in a second set of elections in November.

Located in the northeast of the country, on the border with Nepal, Bihar was India's third-most-populous state. Historically, it was the base of an agrarian movement that championed the rights of peasant farmers. Most of its residents were scattered across 45,000 villages, where many cultivated the plain that surrounded the Ganges River. Also the country's poorest state, more than half the population subsisted on less than one US dollar a day.¹

When Kumar first took office as chief minister, Bihar epitomized the "worst" of India, as noted in the *The Economist* magazine.² During a decade of government neglect, the state's power grid, roads, schools, and clinics had deteriorated. Stagnant or negative economic growth had made almost half the working-age population from some districts seek jobs in Mumbai or Delhi.³ Law and order were almost nonexistent, and kidnapping was one of the most profitable businesses in the state. Unsurprisingly, Bihar had the lowest level of private investment in all of India.⁴

Self-dealing in the top ranks of government leadership undermined government capacity and made Bihar one of the least-desirable postings for competent civil servants. More than half (54%) of positions were vacant in the state's Indian Administrative Service, the top-ranking civil service cadre. Thin management ranks in the state administration stalled decision making and weakened accountability for the implementation of public programs and reforms.

The state had a long history of money problems, aggravated by the shortage of management capacity and paralysis in decision making.⁵ From 1999 to 2005, Bihar's fiscal deficit doubled.⁶ Revenues barely covered interest

payments on debts, and in all of India, the state had the lowest rate of utilization of federal funds targeted for "development purposes."⁷ Since 2000, India's central government had contributed nearly 75% of the state's budget through devolution of shared taxes, central-government-sponsored programs, and resources made available in consultation with the national Planning Commission.⁸ The state's Finance Department estimated that from 1998 to 2001, it had left untouched one-fifth of the central government's total allocation for programs to support rural roads, irrigation, and old-age pensions.⁹ When the state did not use the monies provided, the central government delayed other contributions.

Lack of technology and information connectivity between government offices contributed significantly to Bihar's troubles. The dearth of centralized budget and expense data made it impossible to get a precise picture of the state's finances or to evaluate the performance of policies and programs. A government that was unable to manage its fiscal processes efficiently could not allocate resources or track operations effectively. Chanchal Kumar (no relation to others with the same name), former secretary to the chief minister, said: "Earlier, the state did not have the big picture. What we needed was a system that would give a complete report at the end of the financial year. The system would then be able to facilitate a dynamic decision-making process."

The inability of the Finance Department to share financial information and monitor funding flows made legitimate spending cumbersome and created opportunities for graft. Referring to the so-called fodder scam—a corruption scandal that implicated the former chief minister, other politicians, civil servants, and businesspeople—Deputy Chief Minister and State Finance Minister Sushil Kumar Modi said, "It had become easier for corrupt officials to withdraw money [from the Treasury] because headquarters didn't know how much money was being withdrawn."

The administration ground to a halt in the aftermath of the investigation and convictions. Chirashree Gupta, former associate professor at the Asian Development Research Institute in Bihar's capital city of Patna, said: "There was so much fear about spending that expenditure levels went down. Nobody was willing to take responsibility for a signature or a sanction."

A June 2005 World Bank report entitled *Bihar: Towards a Development Strategy* laid bare the state's many challenges and encouraged the new chief minister to focus on economic growth and service delivery, particularly for Bihar's poor. The report said improvements in economic growth and service delivery required greater government accountability—an idea that aligned with Kumar's own thinking. "In 2005, we had not one but many kinds of challenges," he said. "These were mainly governance challenges: restoring law and order, developing infrastructure, and improving the social sectors. But the first need was to restore the public's confidence in government."

During his first five-year term in office, Kumar decided to invest heavily in the use of information and communications technology, or ICT, to improve service delivery and restore the public's confidence in government. He focused on ICT as a tool that would modernize the administration, track state finances, boost revenue collection, make government information accessible, and facilitate public service delivery. In his second term, he tried to consolidate those gains.

THE CHALLENGE

Reviving basic government functions was an important step toward persuading Bihar's citizens that the government was on their side. Kumar viewed ICT as a versatile tool for quickly rebuilding state administration, improving services, and reaching out to citizens.¹⁰ But his administration would have to start from scratch in rolling out e-government programs to streamline fiscal management, strengthen public service delivery, and increase transparency.

The chief minister's office, ministries, and other government agencies were ill prepared for the transition to ICT-enabled administration. Offices did not have computers, and there were no centralized or integrated databases. Kumar said: "We started with Remington typewriters. Briefings would come to me typed on very, very thin paper. It was very difficult."

In 2005, the state had no information technology (IT) department to manage computerization or networking of offices, to develop software, or to coordinate online services. Bihar's civil servants were not trained in using computers and software that could help them improve performance and deliver better services. Government workers followed obsolete administrative procedures and maintained only paper files.

Bihar also lacked a state training institute that could provide targeted ICT training for civil servants at all levels of government. Siddharth Kumar, a technical adviser to the state government supported by the UK Department for International Development (DFID), said, "The new government wanted to deliver, but a key challenge was that of building capacity among its staff, improving systems and processes of departments, and improving the way it functioned." (Kumar is a common Indian name, and none of the other individuals mentioned in this case study are related to the chief minister.)

Low literacy rates among Bihar's population—just 60% of men and 33% of women could read—presented another challenge.¹¹ Optimal use of ICT by government required a citizenry that had the reading and writing skills to take advantage of new or updated services such as those created by India's landmark Right to Information Act. Many of Bihar's citizens were unable to fill out even the simplest of forms to request information under the law, which required authorities to publicly disclose information about government spending and policies. Bihar's government had to develop new ways for its citizens to access public information and services through ICT.

Lack of reliable electric power and network connectivity posed another challenge to expanding the use of technology in Bihar. Government offices, both in Patna and in rural or remote areas lacked Internet connections. Nearly 95% of the state's rural households relied on kerosene lamps for lighting; only 4.2 million of 83 million residents had mobile phones; and less than 1% of the population had access to the Internet.^{12,13}

FRAMING A RESPONSE

Trained as an engineer, Nitish Kumar believed in the power of technology to improve governance. As India's minister of railways from 2001 to 2004, he had initiated an online ticketing process for the 100 million people who traveled by train each year. His emphasis on ICT as a tool for administrative reform built on broader technology shifts taking place in India.

Mobile phone use in India soared after the national government implemented a new telecommunications policy in 1999. Handsets became cheaper, and mobile phone service providers rapidly expanded coverage across the nation's 640,000 villages. From a nationwide total of just 1.2 million in 1999, the number of mobile phone subscribers swelled to 266 million by 2009 and 862 million by 2013.^{14,15} In 2005, only 4.2 million of Bihar's 83 million citizens had mobile phones, but that number reached 26 million in 2009 and then more than doubled to 61 million by 2013.^{16,17}

By 2005, many Indian states had implemented ICT reforms to modernize their administrations and better meet citizens' needs.¹⁸ Andhra Pradesh, Maharashtra, Karnataka, Kerala, and Tamil Nadu had computerized land registrations, Treasuries, and licensings. Kerala, Maharashtra, and Madhya Pradesh had invested in rural electrification and connected villages to the Internet. Since 2003, the central Indian state of Chhattisgarh had been implementing its own e-governance initiatives to put government services online, improve information systems, and

identify specific areas of weak public service delivery.

Kumar wanted to harness the potential of ICT to improve administration, financial management, and service delivery for Bihar's citizens, particularly in rural areas. Chief Secretary Anup Mukerji, the state's top civil servant, said, "The Bihar government had a vision of becoming one of the top five e-governed, IT-enabled, e-literate states in the country by 2012."¹⁹

The chief minister's planned ICT reforms were ambitious in scope, "implemented with the objective of providing an efficient, responsive, transparent, and cost-effective government," Mukerji said.²⁰

If successful, the ICT reforms would have broad impact for governments and citizens throughout Bihar. First, the state government would be able to streamline and standardize administrative processes, track spending to ensure effective financial management, minimize errors caused by manual procedures, and reduce opportunities for corruption. Second, citizens would save time and money because they could apply for and track public services online by using increasingly popular and low-cost mobile phones. Finally, the reforms would strengthen the accountability of local government officials by illuminating poor performance and empowering action by the state and local citizens.

In addition, ICT initiatives were viewed as politically neutral, an important advantage in a state where class, caste, and religious divisions ran deep and sometimes led to violent clashes. "Nitish Kumar took recourse in ICT, a social regime-neutral method to neutralize rent-seeking *babus* [clerks] and bypass socially powerful groups. Without ICT, all of the strong groups in a village could continue to capture revenues and distort delivery of public services," said Ashwani Kumar, a professor of development studies at Mumbai's Tata Institute of Social Sciences and author of *Community Warriors: State, Peasants and Caste Armies in Bihar*.

Sankarshan Thakur, roving editor for *The Telegraph*, an Indian daily, and author of *Single*

Man: The Life and Times of Nitish Kumar of Bihar, said: “Nitish was ahead of his time. He realized how far behind Bihar was. So there was a conscious effort to hop, skip, and jump ahead. There was no other way but to kick-start things and then keep pushing.” Kumar’s administration set a priority on exploiting the advantages of mobile phones for extending ICT to the large population in Bihar’s rural areas, where infrastructure and electrical power were in short supply.

To fund and launch the reforms, Kumar initially relied on state resources and federal funding, later seeking assistance from bilateral donors. Starting in 2007 and 2008, respectively, the World Bank (in the amount of US\$225 million) and DFID (in the amount of US\$28 million) offered technical and financial support to add to the central government resources available for the initiative.^{21,22}

GETTING DOWN TO WORK

When Kumar took office as chief minister in 2005, the immediate priority was to get the state’s finances under control. The first set of ICT reforms focused on boosting revenues and targeted the states’ land registration, treasury, and taxation systems. In a second phase, Kumar’s administration sought to improve communication between government and citizens by establishing a call center for filing information requests and using text messaging technology to monitor government programs and civil servants.

One of the chief minister’s first actions in December 2005 was to lure competent administrators to Bihar to staff his own secretariat as well as key departments. To find highly qualified administrators, he turned to the Indian Administrative Service (IAS), which fills the top ranks of India’s civil service. Journalist Thakur said, “All the officers who manned his secretariat were not just IAS but also from IITs [Indian Institutes of Technology] and very tech savvy.”

Kumar recruited Chanchal Kumar, formerly with the central government’s Ministry of Commerce and Industry in New Delhi, as his

secretary. Amir Subhani became principal secretary of administrative reforms and personnel. Navin Kumar, a senior Bihar cadre IAS officer, became principal secretary of the Finance Department and in 2006, the state’s first secretary of information technology.

Mukerji, who was based in New Delhi and working with the central government at the time, joined as principal secretary of rural development in 2006. “I had always wanted to work in Bihar under a good government,” said Mukerji, a Bihar native. If you have a good government, you can do much more. It is like a force multiplier.” He went on to become the development commissioner and then chief secretary of the state.

Introducing ICT in government offices

Before introducing ICT reforms in the state administration, Nitish Kumar asked the team he had recruited to carry out a comprehensive review of all ministries and departments. The secretaries identified their departments’ responsibilities, assessed specific needs and constraints, and compiled a list of programs and projects currently under implementation. At the same time, they established a temporary call center to communicate with local governments regarding the nature and quality of public services across the state. Chanchal Kumar recalled, “My colleagues and I would call particular *panchayats* [village councils] and ask them about government services—schools, hospitals, public distribution system, and so on.” This step enabled the team to quickly learn the statuses of departments, programs, and services and to decide how to allocate resources that would improve operations.

In a significant departure from the practice of past administrations in Bihar, the chief minister started to solicit ideas from principal secretaries during weekly cabinet meetings. “It was a transition from a noncommunicative [regime] to a communicative one for us,” Subhani said. “The political leadership was innovative and encouraged people to think creatively and implement new ideas.”

Armed with research findings and a shared vision of what had to be done, the team set about coordinating the computerization of government offices. Because the state lacked a central IT department, the chief minister's secretariat and critical government departments—finance, education, and health—initially had to manage their own technology needs. But procurement was cumbersome for the individual departments, and in early 2006, the chief minister assigned responsibility for managing e-governance projects to the Bihar State Electronics Development Corporation, called Beltron.

Formed in 1978, state-owned Beltron had provided IT services for Bihar's election commission since 1997. Mukerji said: "The government made Beltron the procurement agency, and we could place an order through it. So, it made life easier for the secretaries, who didn't have to run around procuring IT equipment."

In 2006, Beltron streamlined its operations by creating a subsidiary, Bihar e-Governance Services & Technologies, to network government offices, establish a central database, and manage e-governance initiatives. In the same year, Kumar's team established a Department of Information Technology to oversee the ICT upgrades throughout the government administration and guide the use of technology to improve the provision of public services. The department became fully operational in April 2007 and immediately began coordinating with Beltron on the implementation of ICT projects.

The chief minister ensured that principal secretaries had state-of-the-art equipment to carry out the administration's reform agenda. Mukerji said: "I received a pleasant shock the day I joined the government of Bihar. An officer came to me with a laptop and digital projector from Beltron. He said that in the present government, every secretary had to be given a projector and laptop. I was amazed."

Introducing ICT systems in key public services

In 2006–08, the chief minister prioritized the implementation of ICT in three pressing areas: land registration, finance, and the Right to Information Act.

Through the collection of stamp duties, registration fees, and court fees, Bihar's land registration system was the state's second-largest source of internal revenue. But the land registration process was cumbersome and took several days, on average. A registering officer had to verify each deed, a land registry clerk checked the stamp duty, and another clerk revised the registration fee. Various details were entered by hand in different register books before the document could be endorsed and returned to the applicant. Poorly kept records, the complications of manual entry, and ownership disputes often led to long delays; and the registration process could take seven to eight years in some districts.²³ Landowners also routinely deflated the market value of their holdings in an attempt to reduce their property taxes. Mukerji, principal secretary of rural development from 2006 to 2009, said: "Our population is 88% rural, and our land records are fudged. The challenge was to digitize and clean them."

In September 2005, just a few months before Kumar became chief minister, an interim government introduced a system designed to protect against loss of property deeds and to prevent fraud and forgery. The pilot test for the new System for Computerized Registration, or SCORE, was at the registry office in the state capital, Patna.²⁴

Developed by the National Informatics Centre, a unit of the Indian government's Ministry of Communications and Information Technology, the system captured details of deeds, identified and evaluated the minimum value of properties, and checked for payment of stamp duties and registration fees. To use SCORE, district registration offices could rent the required hardware—five computers, a printer, a webcam, and one scanner—and software at a low monthly cost from the center. The system recorded not only the value of the property and the details of

the deed but also a photo and the fingerprints of the applicant. It issued applicants a tracking number, serial number, and deed number for every deed so that documents could be easily identified and retrieved.²⁵ SCORE reduced the average deed processing time to less than an hour.

In March 2006, positive results from the pilot convinced Kumar to scale up the system to all of Bihar's land registration offices, and by July, 105 of the 111 registry offices in the state were SCORE enabled.²⁶ SCORE was financially sustainable because the fee of 20 rupees (about 40 US cents) charged per application covered the operating costs.²⁷

The chief minister then focused on the use of ICT to tighten control of the state's finances and reduce opportunities for corruption in the Treasury. In 2006, Deputy Chief Minister Modi visited other states that had adopted Web-based revenue collection so he could learn what services to put online, what aspects of a service Bihar should automate, what to expect from citizens using the system, how to build civil servants' capacity, and how to monitor and evaluate the system.

In 2007, Principal Secretary of Finance Navin Kumar led a pilot of the Comprehensive Treasury Management Information System, which was designed to provide real-time information for three Treasuries in Patna and one district-level sub-Treasury. The system affected all Treasury-related functions, including budget preparation, budget allocation, and cash management. It helped overcome manpower constraints and manual errors while increasing processing speed and transparency.

"The use of ICT played a major role in [streamlining] the financial system in Bihar," Modi said. "At any particular point in time, the finance ministry and secretary can immediately see about how much money is being withdrawn [from the Treasury]. This also helps in knowing how much money we are spending."

The automated Treasury management system had shortcomings. The system was not integrated

with procurement and not linked to the auditor general's office or state-owned banks. District-level disbursement officers could not send authorization requests to the Treasury through the Web-based system. Neither could the system provide customized information or track the performance of individual offices. Despite those shortcomings, the pilot was viewed as a success. The Treasury management system had cut the three-month budgetary planning process to just two weeks.²⁸

In May 2008, the administration decided to scale up the Treasury management system. With the help of the IT department and Beltron, the Finance Department purchased 1,200 computers and trained data entry operators in 38 districts before installing the system in all 59 Treasury offices across Bihar.²⁹ Mohan Nagarajan, senior economist at the World Bank, praised the reforms: "By 2009, Bihar had a fully functional automated Treasury system, with the old Treasury manual updated and new procedures put into place."

Chief Minister Kumar also wanted to be at the forefront of implementing India's 2005 Right to Information Act, which required the central and state governments to disclose public information and build transparency and accountability. Under the law, citizens could seek information on the management of public funds, on administrative decision making, or on delays in service delivery. A citizen could visit a government office to file an application, pay about Rs10 (20 US cents) to a public information officer, and, within 35 days, receive the information requested.

In Bihar, implementation of the act had fallen short of expectations. Filling out forms required a moderate level of literacy; the process for filing a request was unclear and burdensome; transportation costs to file a request were onerous for the rural poor; and government officials sometimes harassed applicants.

In January 2007, the government of Bihar launched Jaankari, a telephone hotline designed to help overcome those problems. Beltron procured

the necessary hardware and software, and the government outsourced operations to a private call center. Jaankari used trained call operators rather than civil servants to help citizens make requests under the Right to Information Act and to answer citizens' questions. Operators spoke with callers, determined their request needs, and forwarded any complaints to the Home Ministry for immediate action. Callers received unique reference numbers, and operators forwarded copies of formal request letters to the appropriate public information officer for action.³⁰ The telephone application cost the same as the paper one but did not require applicants to travel to an office or to be literate. For quality control, the Jaankari system recorded conversations and spot-checked operators.

In late 2007, Kumar's team moved Jaankari to the General Administration Department, a regulatory department within the chief minister's secretariat, with Beltron providing technical expertise. The move provided better coordination and monitoring and eliminated the cost of the private call center. By June 2010, Jaankari had received nearly 60,000 calls from citizens across 38 districts.³¹

Training civil servants

To support the launch of ICT systems for improved service delivery, Kumar called on the chief secretaries to educate and motivate civil servants. The state government lacked a central agency for training, so each department had to carry out basic as well as ICT-related training. Staff needed to rapidly acquire basic computer literacy as well as learn the new software systems. Departmental secretaries moved quickly to put training programs in place. Top-level secretaries also held daylong workshops across the state to inform the state's 534 block development officers about the new systems and solicit their feedback.

In the Finance Department, Navin Kumar had provided computers for a large number of employees, including assistants, accountants, assistant Treasury officers, and treasury officers. To ensure that his staff was able to use the

computers, he held a series of two-day training sessions for small groups of employees—no more than two or three people at a time. The trainers identified a leader from each group to receive an additional week of training. Those leaders in turn trained people in their units, and the dedicated call center provided assistance when special problems arose.

The administration rewarded staff members who showed flexibility and enthusiasm in adapting to the new systems by sending them outside Bihar for additional training. Selected civil servants visited technologically advanced states in India and neighboring countries in order to learn best practices and new techniques. They brought their lessons back to Bihar. Chanchal Kumar said, "The government was liberal in sending officials to see good development work outside the state. Every month, someone would be meeting a foreign delegation or going abroad for meetings and trainings."

Starting in 2008, the government of Bihar began to work with UK development agency DFID to train both existing and incoming civil servants. DFID also helped provide basic computer training for higher-level civil servants who often relied on subordinates to handle computer-related tasks. Technical adviser Siddharth Kumar recalled that leaders stressed the personal as well as professional value of computer literacy in training programs for the staff of the Bihar Public Service Commission, the agency responsible for recruitment of civil servants. "Our emphasis was not only that you are learning these skills for official purposes but also that you can use them as life skills," he said.

As with the Finance Department, trainers identified champions—people with a knack for ICT and general technology, and could teach others. Kickoff meetings fostered enthusiasm for ICT-enabled projects, and leaders shared goals and priorities. The government also worked with DFID to recruit and train assistants to work in blocks, or subdistricts, with local clerks who had never worked on computers or ICT-enabled systems.

The success of the DFID-funded program led the government to invest in professional development and comprehensive training during the chief minister's second term by earmarking 1.5% of salary expenses for training and by linking participation in the training to performance appraisals. Completion of the ICT training became mandatory for civil servants' pay progression and promotion.³²

Deepening ICT reforms

In November 2008, encouraged by early progress in the finance and land registration departments, Chief Minister Kumar launched the Bihar Governance and Administrative Reforms Program under the purview of the General Administration Department. With technical assistance grants of US\$29 million from DFID and the World Bank,³³ the government implemented two projects: a Web-based commercial tax collection system and a mobile-phone-based reporting system that would monitor service delivery in rural areas.

First, with the help of Beltron, the Commercial Taxes Department set up a Web portal that enabled businesses to pay taxes online. Combined with a flat tax for small and micro enterprises, the initiative aimed to simplify the tax payment process for businesses and boost revenues. The portal let business owners register, file returns, and pay their tax bills via links to online banking, thereby saving time and money on transportation. Users also could ask questions and track the progress of their applications.

The online payment system enabled the tax department to deal effectively with large numbers of taxpayers, better identify and manage errors, manipulate data, and compare payments from one year to the next. Chanchal Kumar said, "The number of taxpayers is so large that it would not have been possible to check calculations and deviations manually. Now the processes are institutionalized, and the system will raise a red flag whenever some deviation is detected—say, if someone paid Rs2 million tax last year and is

paying only Rs2,000 this year. Tax officials can then investigate the matter."

Not surprisingly, many civil servants and business owners initially shunned the online system in favor of the paper-based procedures to which they were accustomed. The tax department responded by training more civil servants, publicizing the new system, and holding workshops for business owners.

Second, in 2009, the administration introduced a monitoring system called mobile technology that used existing mobile phone technology to transmit data and reports about program implementation and public service delivery across Bihar. Text messaging (also called SMS, for short message service) required only access to a mobile phone and functioned even in areas that had patchy electrical service.

The state government asked officials in each subdistrict, or block, to send a standardized text message from a mobile phone, provided by the state government, to a central server address at the end of every workday. Distinguished by unique number codes, each message furnished the local implementation status of critical services or programs such as benefits provision, housing and food subsidies, education, child and maternal health services, bicycle and school uniform distribution, land transfer, and rainfall updates.

A computer program compiled the SMS data into a daily statewide status report that was accessible by both government officials and citizens.³⁴ Training teams visited each block, the smallest administrative unit in the state, to instruct local staff on how to compose and send the short, standard-format messages.

At its peak in 2010, the SMS monitoring system was taking in a daily average of 4,000 messages.³⁵ Over time, however, departments broke away from the centralized system and began developing their own, customized systems better suited to unique sectoral needs. Chanchal Kumar attributed the shift to the increased availability of computers, technical expertise, and Internet access, which gave each department greater capacity to monitor its own programs.

Ensuring service delivery

Reelected in late 2010 by a significant majority, Chief Minister Kumar shifted the reform focus during his second term. Having already empowered the government to provide better services more effectively, he sought to empower citizens to demand and receive their fair share of those services. Aiming to address corruption, inefficiency, and lack of transparency in government affairs, his team spent the first half of 2011 working out the details of a Right to Public Services Act, learning from states like Madhya Pradesh that had passed similar legislation. The act, which became law in August 2011, established a procedure for citizens to demand specific services such as land title transfers; birth, caste, and marriage certificates; and pension payments. Moreover, the law required government agencies and civil servants to provide the services within set time frames.

The act prioritized (1) services that affected the largest number of Bihar's citizens regardless of economic, ethnic, or other distinctions and (2) services that the government had the greatest capacity to deliver. The law placed strong emphasis on services that filled basic needs involving education, finances, and food, including scholarships, pensions, and ration (food) cards, which were essential for accessing other benefits. At the same time, the act excluded services that were difficult or costly to deliver in certain locations or under certain conditions, such as those involving the provision and use of electricity. The list initially covered 26 services, many of them borrowed from Madhya Pradesh's list; and later, the number of services doubled, to 52.

In a September 2011 blog post, the chief minister noted, "We have now ensured that our people do not have to run around the offices and grease the palms of the public servants to get their work done."³⁶

Civil servants, however, were wary of the new legislation. The act required government agencies to deliver services within predetermined time

frames. Civil servants who failed to meet the deadline for issuing a certificate or processing a scholarship payment had to explain the reasons in writing. Penalties for missing deadlines included fines of Rs500 to Rs5,000 (US\$10 to US\$100) and possible dismissal for egregious behavior.³⁷

Many civil servants insisted that because of circumstances that were beyond their control, they could not be held liable for failed service delivery. In response, Anup Mukerji, then Chief Secretary of Bihar, proposed a generous time frame for action on each service covered by the legislation. The team assured civil servants that they would not be held responsible for services that were not delivered because of such factors as late budget allocation.

To implement the Right to Public Services Act, the administration created an online portal for accessing information on public services, a text messaging service, and a citizen call center. Those service delivery tools capitalized on Kumar's past investments in government ICT reforms and the growing availability of mobile phones. Chanchal Kumar said, "The idea was to use mobile technology for the large number of people who wouldn't have access to any computers or equipment other than mobile."

Applicants for government services or documents provided their phone numbers and received receipts containing 16-digit identifying numbers, information regarding their requests, the local government office address, and the service due date. The receipts enabled citizens to seek administrative and legal redress if they did not receive the service within the guaranteed time frame.

When notified by text message, applicants returned to local government offices to obtain the services or documents. Notification via text message reduced the number of visits and minimized opportunities for bribe solicitation.

Applicants could submit applications for some services online or via mobile phone. The state government developed Web-based applications for major services, including caste, income, and residential registration and

certificates, which accounted for about 70% of all applications in Bihar.³⁸ Citizens also could use a help line modeled on Jaankari to file applications, track their status, and connect to public grievance officers.

Members of the Bihar team continued to improve the systems after the rollout. They simplified forms to make them more user-friendly, clarified the supporting documents required for each service, and visited local offices to assess and fix problems. The software enabled the government to speed up delivery times by tracking the number of people accessing particular services and the average time for delivery. Balasubramanyam Muralidharan, an adviser to the state government, said: “We said we would provide caste, income, and residence certificates within 21 days. But now the government of Bihar has data and has reduced the time frame in two phases: first to 14 days, and now to 10 days.”

To fully implement the Right to Public Services Act, local government offices had to be able to tap the Internet—a challenge, given Bihar’s lack of consistent electrical service and sparse connectivity. For block or subdistrict offices whose Internet connections were sporadic, Kumar’s team designed a system that let employees save their information offline and then upload the data quickly when an Internet connection became available.

OVERCOMING OBSTACLES

From the outset, Kumar’s government faced multiple obstacles in implementing ICT reforms. When Kumar took office in 2005, many civil servants, especially those at lower levels, were reluctant to embrace ICT-based reforms. In a culture in which a job often was a lifetime undertaking, many had been in their posts for decades, had few technical skills, and were comfortable working with paper and pencil. Others resisted any changes that reduced opportunities for graft. Mukerji noted: “There wasn’t so much of a problem at the top-officer level because there was no resistance and lethargy.

But the levels below, down to the staff, showed reluctance.”

The chief minister believed in management by example rather than by direct confrontation. “You have to lead with your actions,” he said. “If *you* start working, then *everyone else* will start working. I didn’t give speeches to anyone. I only talked about work, and when I started implementing, they did, too.”

Top leadership set the tone by constructing a strict workday schedule. Staff in many offices often trickled in after 10 a.m. The chief minister recalled: “I changed the office time. I would reach [the office] at 9:25 a.m., and I did so for a week. So everyone started coming in by 9:30.”

Regular cabinet meetings, rigorous focus on issues, and emphasis on results and accountability sent a clear message for top civil servants, who in turn ensured that the chief minister’s expectations were made clear to staff. Chanchal Kumar said: “Hierarchy and decision making were very clear. The chief minister’s priority was clear: if there were genuine grievances, then they would be discussed but not otherwise. And that message was emphasized from time to time—from senior secretaries down to the block development officer’s level.”

The changes in management style and organizational culture trickled down, and the positive feedback loop not only improved staff performance but also drew more competent personnel into the civil service.

Journalist Thakur said: “Nitish Kumar was able to communicate to the bureaucracy that he wanted accountability. He would want results within 24 hours. There were regular cabinet meetings, with note taking and files discussed at the meeting. You have to remember that cabinet meetings had not been held in Bihar for years.” He added, “The bureaucracy in India is a trained one. When they see their political masters behaving a certain way, they fall in line. And when the message went out, a lot of talented Bihar cadres [top civil servants] returned [to Patna]. They had a free hand as long as they did the job.”

Regular monitoring helped. The chief minister said: “We monitored and made regular field visits. I personally made many field visits to check different schemes all over Bihar.”

Kumar also convened weekly meetings to hear public grievances, and he required department officials to attend. Mukerji recalled: “We used to think that it was an inordinate waste of time. We would sit there when other things have to be done in the field. But he used the *darbars* [meetings] to get feedback from the people.”

Grappling with corruption

Even though the ICT reforms improved monitoring and transparency in service delivery, petty corruption remained a problem. Computerized accounting and fiscal management systems introduced checks at the higher levels of government that made it harder for top officials to skim off public funds. More funds started to move down to the block level. Concurrent reforms in health, education, and pension plans also increased allocations to those sectors and gave the frontline civil servants in charge of implementing programs at the village level access to larger flows of money. Thakur of *The Telegraph* said: “Corruption has increased because liquidity at the lower office level has increased. A 100-rupee (US\$2) pension benefit for the elderly wasn’t reaching the villages [earlier]. Now even if 30 or 35 rupees are not reaching them, they are still getting 65 rupees.”

Some top civil servants and observers said reforms did not help reduce corruption. Mukerji said, “One concern is that corruption has increased across the board.” Rent seekers found ways to get around the new technology. Even though the new ICT-enabled procedures aimed to cut out the middlemen, uneducated citizens or those with no access to a computer or the Internet had to seek help or bribe local public servants. Professor Kumar of the Tata Institute gave an example: “ICT seems neutral, but it isn’t that neutral. If you have to get a duplicate copy of

a driver’s license, you have to pay a bribe to download the form.”

As corruption in the implementation of welfare programs became more evident,³⁹ the chief minister took measures to sanction bribe takers and set examples. He ordered investigations into allegations of corruption, and he ordered stern measures be taken against those found guilty. From 2006 to 2010, the state vigilance department, responsible for monitoring corruption in civil service, arrested 325 civil servants—including 50 high-ranking officials—on bribery charges and confiscated their assets.⁴⁰

ASSESSING RESULTS

Bihar’s ICT-related reforms earned national and regional recognition. In 2007, SCORE, the online land registration system, received the Indian Prime Minister’s Award for Excellence in Public Administration. The Jaankari call center received the government of India’s gold medal in the Outstanding Citizen-centric Programs category in 2008, and a year later, the Manthan Award South Asia, an annual ICT award for development initiatives. Chief Minister Kumar said: “We had Remington typewriters in the beginning [2005], but by 2008, the government of India had given an e-governance award to Bihar. We changed the situation in three years.”

The chief minister’s investment in technology modernized and reinvigorated Bihar’s administration. Former secretary Chanchal Kumar said: “In December 2005 there were no computers. But we slowly built the IT infrastructures. The entire secretariat is now connected. Most departmental communications are now through e-mails and Web systems. Videoconferencing is the normal means of communicating with field officers. We connected all the blocks [subdistricts] with broadband infrastructure, and the blocks are on Internet phone also.”

The Treasury reforms merged the government’s fiscal processes into one unified system, which improved decision making, cash flow management, and fund utilization. By 2010,

all 59 Treasuries were digitally linked to the accountant general's office, making information sharing easy, accurate, and timely. The new system also allowed for real-time expenditure tracking and prevented leakage.⁴¹ A 2010 case study about the computerized Treasury management information system noted, "The system has helped the Finance Department to determine budgetary needs of other departments and has in turn, ensured timely and appropriate allocations, making for effective budgetary control of the state."⁴²

The online tax payment system for businesses contributed to both revenue growth and an increase in the number of registered taxpayers. When the project started in 2009, only 149 businesses in Bihar filed tax returns electronically. In February 2013, 78,000 businesses filed returns online. In 2013, Bihar's tax revenues totaled US\$3.06 billion compared with US\$800 million in 2006. More than 90% of tax payments were made online in fiscal year 2013, Modi said.⁴³ Kumar's administration invested the increased revenues in roads, hospitals, electric power lines, and social sector programs.

Bihar's ICT reforms also enabled citizens to better hold government accountable for service delivery. Jaankari recorded a fourfold increase in the number of calls after its inception in 2007. The Right to Public Services Act help line received more than 65,000 calls in the two years of its operation from August 2010 to 2012. External agencies such as the OneWorld Foundation India, an organization that uses ICT to promote sustainable development and human rights, mentioned the Right to Public Services Act in a 2011 document on best practices, stating that "the primary achievement of the program has been to encourage citizens to demand public services from government."⁴⁴

During the 10 months that ended in June 2012, the government received 17 million applications under the Right to Public Services Act, according to a DFID annual report on support to Bihar. Nearly all (94%) of the

applications were completed, 89% of them within the set timelines.⁴⁵

In June 2014, the government reported that it had received a total of 72 million applications since the inception of the services act in August 2011 and had completed 66 million.⁴⁶ Citizens had filed 175,000 appeals, and the government had imposed 733 penalties on civil servants for not complying with the act.⁴⁷

Of the respondents to a 2012 DFID-funded citizen report card on eight basic services in Bihar, 76% stated that service delivery had improved after implementation of the act.⁴⁸ Although studies pointed out that improvements in performance might be linked as much to increased resources as to the services act,⁴⁹ the speed and quality of public service delivery rose remarkably given Bihar's capacity constraints.

Conducted by the Public Affairs Foundation, a not-for-profit Indian organization committed to improving governance, the report card noted that various services had improved in quality during the previous four years, with 86% of respondents satisfied with improvements in health facilities, 77% with improvements in the issuance of certificates, and 76% with both school facilities and pension services. Overall, 81% of those surveyed were satisfied with pension services, followed by health facilities (80%), and certificates and food distribution (78% each), among others.⁵⁰ Users reported low incidence of corruption for some services—at 1.5% for food distribution, for instance—but higher for others, such as 28% for pension services.⁵¹

Not all citizens rated all services positively. Local public officials and civil service staff needed education and training in managing grievances and delivering services. About half of those surveyed in the 2012 citizen report card were dissatisfied with the grievance redress system, and a third had problems with the public employment program,⁵² claiming that it took too long to get a grievance addressed or receive wages.

States such as Rajasthan and Karnataka learned from Bihar's experience in implementing rights-based programs similar to the Right to

Public Services Act. Harsh Kothari of consulting firm Deloitte Touche Tohmatsu, part of a DFID-sponsored technical assistance team, said: “Bihar still has a lot of catching up to do. But there has been a turnaround. Bihar used to look to other places for learning lessons, but now people from neighboring states and countries—like Nepal and Pakistan—are coming to learn about the reforms here.”

However, as of 2014, Bihar’s government had not yet evaluated the impact of ICT-related reforms on service delivery. Mukerji said: “Has it made a difference in the lives of the people? In our annual report, we talk only about how much money has been spent, how many positions were filled, how many patients visited clinics, but not how much the public’s health has improved. That is a failing across the board.”

Lack of comprehensive and integrated ICT reforms prevented coordination across departments to better deliver public services. In the area of land registration, although SCORE was effective in automating the process, more-comprehensive solutions were needed. Mukerji noted: “In land records, only registration has been computerized, but not land records per se. Those papers are under the revenue *karamcharis*, or the lowest functionaries in that chain of command, who misuse their position.”

The implementation of ICT reforms was inconsistent across government departments. Some departments used technology well, but others continued to operate manually. Deloitte’s Kothari said: “There is no one-stop portal for providing cross-agency, citizen-centric information and services. Departments are working in silos and devising their own e-service platforms and software. Some departments have total state-of-the-art structures and portals, and other departments are doing things manually.”

Critics also pointed out that reforms did not extend far enough down to root out corruption at the local level. A January 2010 article in *The Economist* commented that although Bihar had blossomed under Nitish Kumar, his reforms were superficial.⁵³ Indeed, contrary to official claims,

some of the reforms did not reach all parts of the state. World Bank economist Nagarajan said: “It is still a challenge to know how to improve public services. Under the Right to Public Services Act, some services have improved, mainly related to certain certificates. But even here, the service is still offered only at the block levels, resulting in overcrowding at the counters. In rural or small areas, there are still the old ways, with intermediaries hanging around the Right to Public Services counters helping you access a counter, and there are many pending applications.”

Professor Ashwani Kumar at the Tata Institute of Social Sciences said of the services act, in particular: “I have traveled extensively around Bihar. The Right to Public Services Act seems to be only on paper. It is like a citizen charter that doesn’t matter much.” Reforms that did not challenge vested interests and existing structures were successful. Those that did—such as the national government’s Right to Information Act—failed to make much progress. Nitish Kumar’s commitment to the Jaankari telephone hotline was undeniable, but the system’s long-term results were unclear in 2014. The professor said, “It was a revolutionary trend to bring about accountability and transparency. But did it achieve the desired results? The jury is still out.”

REFLECTIONS

Bihar made remarkable progress during the seven years of Nitish Kumar’s leadership, aided by financing from India’s central government and by skilled Indian Administrative Service officers. Bihar’s story showed what could be achieved by marrying strong political will with technological and process innovation.

Observers considered Chief Minister Nitish Kumar’s first term more successful in advancing ICT reforms than his second one. Although the chief minister renewed focus on public services through the Right to Public Services Act, the pace of reforms slowed when initiatives had to be improved or expanded to reach all parts of the state.

Kumar's top-down management style, which had served him well in jump-starting and managing key reforms during his first term, prevented him from broadening and deepening the same initiatives later on. Even top civil servants did not feel empowered to continue expanding or improving programs and, for their part, failed to delegate as well.

Senior Economist Mohan Nagarajan of the World Bank said, "The challenges to service delivery lay in implementation, which was greater and needed sustained effort and adequate delegation to strengthen a department's [ability] to execute. This has not happened Consequently, progress has been slower and less impressive than in the first term."

Observers also pointed out that for the state to continue on its path of progress, Kumar's second term required reforms that were tougher or controversial, requiring much more time and effort. Nagarajan said, "The challenge in the government's second term was that there were no more easy pickings for quick improvement."

In 2014, Bihar needed deeper reforms that would go beyond the relatively easy ICT initiatives and would challenge the status quo—such as comprehensive land reforms—or require substantive investment, such as power generation for attracting industries.

Nitish Kumar's Janata Dal (United) Party suffered a crushing defeat in the national elections of May 2014. Only two candidates out of a total of 40 won seats in Parliament compared

with 20 in 2009. Sankarshan Thakur of *The Telegraph* said: "In 2014, Nitish Kumar felt that he had an aura . . . and that Biharis had overcome caste loyalties and would vote for a leader who was good for Bihar. But his years in power have not changed the caste equations. That's a political failure. He has transformed the way the government works but has not been able to extract the constituency from this development."

Election results notwithstanding, Nitish Kumar's ICT reforms had a lasting impact on the state. Professor Kumar of the Tata Institute said: "Nitish Kumar tried to reconstitute the relationship between state and society. For the first time, ICT entered the imagination of the people. It embedded itself in a hierarchical and traditional society, and that is his greatest reform."

Nitish Kumar reflected on how his ICT reforms had brought about improvements in the quality of life in the state: "In Bihar, the situation isn't the same as it was in 2005, when there was a virtual collapse [in governance] and no implementation [of programs]. People did not expect or desire anything. But now you can see that in Bihar, people have started having expectations. The public is involved and aware. This is also a part of governance."

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