CHAPTER 3

The e–Sri Lanka Program Design

In *E–Sri Lanka: An ICT Development Road Map*, the government of Sri Lanka identified information and communication technology as a key to achieving growth, equity, and peace—through technological and institutional transformation of all sectors in the economy and development of the ICT industry (Sri Lanka, Ministry of Science and Technology 2002). E–Sri Lanka, the outcome of the process described in the previous chapter, is a comprehensive program of leveraging ICT to improve the delivery of public services, increase the competitiveness of the private sector, promote new sources of growth, accelerate social development, bridge the digital divide, and support peace.[1] It aims to support the country's growth and poverty reduction strategy. It takes account of the key challenges and opportunities in using ICT for development. And it builds on the synergies and interdependencies in e-development.

The program is continually evolving through an adaptive learning process led by the newly established ICT Agency. As an innovative program led by a newly created institution, it is bound to change in response to a highly fluid political environment, shifting expectations, and the learning gained through implementation.

Strategic Context: Sri Lanka's e-Readiness

The challenge for Sri Lanka is to harness the power of ICT to compete in the global knowledge economy. How well positioned is the country to do so? The reality is that access to the tools for knowledge and wealth creation is still scarce and inequitably distributed. Sri Lanka lacks the widespread digital literacy and the ICT applications that have enabled other countries to exploit emerging technologies. Per capita, OECD countries have roughly 11 times the income of Sri Lanka on average, 40 times the computers, 146 times the mobile phones, and 1,036 times the Internet hosts.

Sri Lanka has fared poorly on major e-development rankings. It ranked 66th, for example, on the 2003–04 Networked Readiness Index, which measures an economy's preparedness to participate in and benefit from ICT developments (table 3.1). Sri Lanka lagged particularly in ICT use. A big factor in that ranking, however, was its lack of a coherent national strategy and policy leadership to address the special needs of the dynamic ICT industry and the barriers to the diffusion of ICT in the economy.

Sri Lanka has also ranked low on e-readiness and, especially, e-government capacity. In the International Telecommunication Union's global Digital Access Index for 2002, Sri Lanka ranked 106th among 178 economies (table 3.2). Even so, Sri Lanka is more ready for a comprehensive e-transformation than most of its South Asian neighbors. Indeed, it compares well with India in aggregate e-readiness, though it compares less well with some of India's leading states.

Table 3.1 Networked Readiness Index Rankings for Selected Asian Countries, 2003–04

Country	*Environment index rank*	*Readiness index rank*	*Usage index rank*	*Networked readiness index rank*
Singapore	2	4	2	2
India	44	50	44	45
Sri Lanka	66	64	71	66
Pakistan	76	78	62	76

Source: Extracted from World Economic Forum 2004.
Note: The environment index measures the conduciveness of the environment to developing and using ICT. The readiness index measures the capability of the principal agents of an economy—citizens, businesses, and governments—to leverage the potential of ICT. The usage index measures their use of ICT. The Networked Readiness Index is a composite of these three indices. The top-ranked country is ranked number 1.

Table 3.2 Digital Access Index for Selected Asian Countries, 2002

Country	*Global rank*	*Access level*	*Score*
Korea, Rep. of	4	High	0.82
Sri Lanka	106	Medium	0.38
India	119	Medium	0.32
Pakistan	129	Low	0.24
Bangladesh	138	Low	0.18

Source: Extracted from World Economic Forum 2004.
Note: The Digital Access Index covers 178 economies and combines eight variables in five areas: availability of infrastructure, affordability of access, education level, quality of ICT services, and Internet use.

Key Challenges

As the government began work on designing the e–Sri Lanka program, it had to confront several challenges to Sri Lanka's e-development:

- *Politicized, highly fragmented, and poorly managed civil service.* Sri Lanka has a poor record of civil service reform, with failed attempts in 1987, 1991, and 1996. The main problems include extraordinary overstaffing, a fragmented structure (with more than 50 ministries in 2005), a weak public service commission (with no competitive recruitment for the administrative service), a patronage-oriented bureaucracy, political interference in civil service management, and a highly unionized lower-government staff.
- *Weak leadership and coordination*. A government agency established in 1981, the Council for Information Technology held much promise for promoting an enabling policy environment. But it lacked a coherent strategy, sufficient financial resources, and incentives to attract and retain scarce technical talent. Political interference progressively diminished its early promise.
- *Low level of ICT use in public agencies*. Only a small number of civil servants had e-mail and Internet access, and ICT management skills were in short supply.[2] Use of ICT in government work was limited and sporadic.
- *Low digital literacy.* A large part of the population, especially in rural areas, lacks computer skills and the capacity to use modern ICT-enabled business and government tools and services. Public universities produce relatively high-quality software engineers, but the output has been small and unresponsive to the industry's changing needs. Digital literacy is not mainstreamed at any level of education.

- *Uneven access to information infrastructure*. Access and connectivity remain low and restricted mostly to Greater Colombo and Western Province. Colombo's teledensity (telephones per capita) is 10 times that in rural areas. Western Province has 70 percent of all telephones, and Colombo 90 percent of Internet access. Some large rural areas have virtually no telecommunications services.
- *Software industry with little institutional support*. The software industry, mainly small enterprises, had limited resources and no institutional support for marketing overseas, upgrading skills and standards, acquiring venture capital, or developing shared R&D. By contrast, competitor nations had developed such programs and institutions through public-private partnerships.[3]
- *Poor donor coordination*. Many international donors were financing ICT for isolated applications and pilots in Sri Lanka. But lack of effective coordination among the donors prevented efficient use of resources and scaling-up of best practices. And complementary investments in institutions and human resources were often lacking.

Key Opportunities

Yet Sri Lanka also has key strengths that it can leverage to capture opportunities to harness ICT for development:

- A high literacy rate (90 percent), high enrollment ratios, and a relatively high ranking on the United Nations Development Programme's Human Development Index (UNDP 2003)
- Proximity to major ICT centers in India and East Asia
- An emerging base of ICT professionals, a promising ICT industry, and an attractive destination for business process outsourcing
- Growing dissatisfaction with the performance of the public sector, particularly with the quality and reach of public services
- Growing awareness of the promise of ICT among the highest levels of government

The telecommunications sector has seen steady growth, with several competing providers emerging. The fixed-line operators provide almost one million lines, and the four private mobile operators serve an equal number of subscribers. The network has expanded rapidly, with fixed lines growing by about 30 percent annually in recent years. In addition, 37 other operators provide data and Internet services.

The software services sector is one of Sri Lanka's few industries with substantial promise for growth and exports. Although small, the software industry is by no means negligible. Annual exports are in the range of US$50 million to US$100 million, the starting point a little over a decade ago for India. Sri Lanka's software sector is still modest compared with India's, but it is concentrating on medium and higher value–added segments (for analysis of the sector and its prospects, see chapter 4).

Software and IT-enabled services are labor intensive, and barriers to entry relatively low. With a stable investment climate and the appropriate policies, institutions, and human resources, Sri Lanka's ICT sector could potentially produce exports rivaling those of the garment industry within a decade. With healthy development, this sector could also help deploy ICT to enhance the productivity of local services and industries as well as the public sector.

Also promising is the booming global industry of IT-enabled services as OECD countries outsource more and more back-office and business process functions to well-positioned developing countries. The window of opportunity for participating in offshoring may not be open for long, as early adopters build their competitive positions and reputations and move to higher value–added professional services. But Sri Lanka, with its high literacy rate and business-friendly environment, can still compete in this dynamic area. To capture this opportunity, however, Sri Lanka must adopt a coherent policy and strategy to strengthen competition in telecommunications, improve the flexibility of its labor market, brand itself to potential markets, and partner with foreign and domestic investors in focused training programs.

The Vision and Program of e–Sri Lanka

The government of Sri Lanka, through extensive public dialogue with stakeholders, developed an e–Sri Lanka road map to foster growth and social integration—a vision that matches the aspirations of both policy makers and the private sector. At the heart of this vision is applying ICT solutions to solve urgent societal problems, equipping the workforce with ICT skills that will enhance their productivity, empowering grassroots organizations, and integrating the communities of the North and the East with the rest of the country. The vision also reflects Sri Lanka's aspiration to join the region's emerging ICT-enabled commercial and logistics centers.

Table 3.3 Development Objectives and Outcome Indicators for e–Sri Lanka

Objective	*Outcome indicator*
Greater access to and use of information and communication tools	• 5,000 beneficiaries in each targeted community regularly using telecenters to improve communication and access to services (health, education, employment, and government services) with a 70 percent satisfaction rate in four years • A percentage increase over baseline in use of and satisfaction with services established as a result of e-society fund grants (to be specified after a baseline is established by the new monitoring and evaluation agent)
Greater access to and use of public services online by businesses and citizens	• 10 percent of target beneficiaries (citizens and businesses) conducting transactions with the central government online
Greater competitiveness of the private sector, particularly the knowledge industry and small and medium-size enterprises	• Reaching a 4.2 score on the business usage subindex of the Networked Readiness Index in four years • 10,000 jobs created in software services and ICT-enabled services industry in four years

Source: Author.

The vision has been translated into a strategic action plan covering five years, 2005–09. The plan targets several key development outcomes: a more effective, citizen-centered, and business-friendly government; empowerment of the rural poor, women, and youth through greater and more affordable access to information and communication tools; skills and leadership in ICT; and the creation of employment through the ICT industry, outsourcing, and greater competitiveness of user industries (such as garments) and services (such as tourism). Indicators to measure progress toward these outcomes were selected through a participatory process involving stakeholders (table 3.3).[4]

E–Sri Lanka consists of the following six component programs:

- *ICT policy, leadership, and institutional development*—to create an enabling environment for the knowledge economy and develop the local institutional capacity to lead and implement an ambitious ICT program
- *ICT human resource development and industry promotion*—to build ICT human resource capacity and create jobs through a dynamic ICT sector, foreign and local investment in the sector, and diffusion of ICT among small and medium-size enterprises
- *Regional telecommunications network development*—to extend the information infrastructure to serve poor and rural areas

- *Telecenter development*—to develop ICT skills and literacy for implementing and benefiting from e–Sri Lanka
- *Reengineering government*—to deliver faster, more efficient, and more transparent government services to all citizens and businesses
- *E-society*—to use ICT for social development and grassroots participation, toward promoting peace, social capital, mutual understanding, and equitable access to knowledge

Synergy among these programs is critical to realizing the e–Sri Lanka vision (Hanna 2004). Extending the information infrastructure through telecommunications networks and telecenters provides channels for delivering e-government services, supports broad-based digital literacy, enables business process outsourcing services, and facilitates ICT use for social and community development. Conversely, e-government and e-society applications create pressure to get information infrastructure into place and enhance the commercial viability of investments in rural telecenters and telecommunications.

Meanwhile, promoting the ICT sector and digital literacy increases the demand for ICT and for its diffusion among small and medium-size enterprises and also lowers the cost of developing and maintaining the new infrastructure and applications, contributing to a virtuous cycle. E-society applications provide the content and services for a dynamic, self-sustaining network of telecenters. And e-leadership and enabling policies are critical for catalyzing and orchestrating all the other elements.

Most of the investment in support of e–Sri Lanka is allocated to modernizing government services and improving access to information infrastructure (table 3.4). Other programs provide technical assistance to build capacity for e-leadership; improve policies for ICT diffusion; promote ICT literacy, education, and exports; stimulate ICT-enabled exports; and mobilize resources and innovation in ICT applications to meet priority social needs.

Program 1: ICT Policy, Leadership, and Institutional Development

The ICT policy, leadership, and institutional development program is aimed at creating a policy, regulatory, and institutional environment supportive of e-development; developing the e-leadership and institutional capacity among key stakeholders necessary to implement the e–Sri Lanka program; and communicating these policies and programs to the wider community of stakeholders and facilitating partnerships around e–Sri Lanka.

Table 3.4 World Bank Financing of e–Sri Lanka Components
US$ millions

Program	*Indicative costs*	*World Bank financing*[a]
1. ICT policy, leadership, and institutional development	8	6
2. ICT human resource development and industry promotion	6	5
3. Regional telecommunications network development	19	19
4. Telecenter development	7	6
5. Reengineering government[b]	35	11
6. E-society	4	3
Project preparation facility	4	3
Total	**83**	**53**

Source: World Bank 2004b.
a. The World Bank financing is provided through an International Development Association (IDA) credit.
b. The IDA funding is being supplemented by other sources, such as a US$15 million export credit from the Republic of Korea.

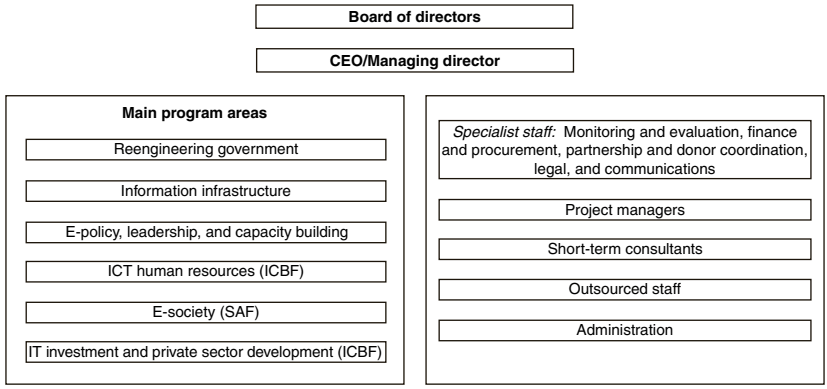
The program is expected to produce these outcomes:

- An enabling policy and institutional environment for ICT use in the public and private sectors
- Capable e-leadership among top government officials and business and civil society leaders, including a coherent network of stakeholder partnerships for e-development
- Effective national coordination of ICT programs and projects
- Digitally empowered public and private institutions implementing e-transformation strategies within a framework of strengthened governance and enforced standards and architecture for interoperability
- Broad awareness of the critical role of ICTs in government, business, and society
- An enhanced country brand for Sri Lanka's ICT capabilities

To achieve these outcomes, the government set up the independent ICT Agency and empowered it to oversee the e–Sri Lanka program. The agency is legally structured as a company to ensure responsiveness and an operating approach similar to that of a private enterprise. Its organizational structure emphasizes lean staffing and an operational strategy based on project management, outsourcing, and reliance on implementation partners for all projects (figure 3.1).

The e-leadership at the heart of this program is located primarily in the ICT Agency, which serves as the core of a national institutional framework for e-transformation. The program is developing the capacity

Figure 3.1 Structure of Sri Lanka's ICT Agency



Source: ICT Agency, Sri Lanka.
Note: This is a simplifed chart, omitting the advisory boards, focus groups, and other mechanisms for accountability, outsourcing, and partnerships. See the chapter in volume 2 on these institutional design issues. ICBF is the ICT capacity-building and industry promotion fund; SAF is the societal applications fund, or e-society program.

of the agency to become a leading change agent and catalyst for facilitating e-leadership and the formulation of e-strategy throughout government, business, and communities.

Drawing on public and private expertise, the agency identifies policy and strategic directions and institutionalizes and disseminates best practices. It produces technology standards and policy and implementation guidelines, facilitates the development of a legal and regulatory framework conducive to attracting foreign investment in ICT, and oversees monitoring and evaluation of the e-development process. Through a strategic partnership program, the agency also promotes public–private partnerships and mobilizes resources from aid agencies and the private sector.

Developing Standards and Institutions. The program provides technical assistance to develop standards and institutions in support of the emerging digital economy, including policy and technology frameworks, architectures, and security and privacy policies. A technical advisory panel advises the ICT Agency on technical issues and reviews the architectures and standards. A special fund mobilizes strategic advisory services on demand to develop e-strategies in support of sector-driven transformation efforts.

The program also funds the operational costs of the ICT Agency on a declining scale over the life of the project. In addition, it funds

training through workshops, short courses, technical assistance, and national and international conferences. The agency has prepared a comprehensive capacity-building program to meet its own needs and, to the extent possible, those of its key partners. This program is driven by an annual corporate planning exercise and an evolving human-resource strategy.

Developing a Legal and Regulatory Framework. The program provides technical assistance and capacity building to develop the legal and regulatory framework for e–Sri Lanka. This initiative fast-tracks laws and regulations relating to privacy, cybersecurity, ICT crimes,[5] data protection,[6] electronic transactions, and intellectual property rights protection.[7] The program also provides ICT legal training for judges, lawyers, enforcement personnel, and others. Over time it will address many other elements of the enabling legal and regulatory environment, such as consumer protection.

Monitoring and Evaluating Results. The monitoring and evaluation system plays a critical part in the e–Sri Lanka program, measuring performance, evaluating progress, assessing impact, and ensuring public accountability. The system promotes institutional learning by the ICT Agency, aids it in understanding the perspectives of stakeholders, and provides timely feedback that supports adaptation of the program, both to redesign initiatives and to implement new ones. It also serves as a key tool for ensuring accountability for results, not only for the ICT Agency's board but also for such stakeholders as the Ministry of Finance, the Ministry of Plan Implementation, and participating aid agencies.

The ICT Agency has outsourced monitoring and evaluation of progress while retaining the roles of oversight, integration, and dissemination. This allows it to capitalize on economies of scale by outsourcing common activities and to ensure compatibility and consistency in approach across all program areas.

Developing e-Leadership. To empower efforts to transform organizations with the help of ICT, the program funds training, awareness raising, and other support for top leaders of government, business, and civil society. A big part of this initiative focuses on the approximately 600 chief innovation officers who have been appointed in public agencies (this designation, rather than chief information officers, is used to emphasize their role as innovators of processes and services).

The ICT Agency has identified four key competencies for chief innovation officers: change management, strategic ICT planning, business process reengineering, and essential knowledge of e-government, e-commerce, and e-laws. These critical skills are developed and delivered through a logical series of workshops conducted by international experts on e-government, both from reputable international consulting firms and from the public sector of other countries.

Tailored programs are also required for policy makers, government secretaries, and business leaders. These are the e-leaders who define the still-evolving role of chief innovation officers and shape their enabling environments. They are also responsible for ensuring that coherent ICT strategies effectively support and even transform their national and sectoral strategies. The program supports the development of this high-level e-leadership by offering innovative, tailor-made workshops and by nurturing communities of practice among local leaders.

Building Strategic Partnerships and Communications. A partnership framework has been developed around e–Sri Lanka, focusing on three areas:

- *Donor coordination*. To ensure that donor funding is targeted to the highest national priorities, the ICT Agency channels the funding for all strategic initiatives relating to e–Sri Lanka. Through an online database, the agency also monitors and coordinates all ICT-related programs and projects to ensure consistency with the e–Sri Lanka vision and national priorities. And with the Ministry of Finance, the agency facilitates roundtable meetings to discuss coordination issues with stakeholders.
- *Fund-raising.* In collaboration with other stakeholders, the ICT Agency engages consultants to develop project proposals for consideration by aid agencies and private investors. In addition, the agency holds fund-raising events both locally and internationally.
- *Public–private partnerships*. Throughout implementation of the e–Sri Lanka program, the ICT Agency is facilitating partnerships between aid agencies and representatives of government, the private sector, and civil society. Partnerships are also sought with Sri Lankans abroad, who represent a large pool of knowledge.

In addition, a strategic communication program has been designed to ensure broad-based awareness, participation, and ownership by local and international stakeholders. The program has two primary aims: to communicate locally the benefits of ICT and the results of the e–Sri Lanka

initiative and to communicate to the international community that Sri Lanka is a destination for ICT investment. Communication is considered a core activity, with managing expectations and obtaining buy-in from the wider group of stakeholders still critical (see chapter 2).

Program 2: Human Resource Development and Industry Promotion

Aimed at developing national competitiveness, the human resource development and industry promotion program seeks to upgrade Sri Lanka's ICT capabilities and to promote innovation in leveraging ICT for competitiveness and exports. Its target groups are the ICT industry, related training institutions and professional associations, and current and potential adopters of ICT among small and medium-size enterprises. The program may also extend to attracting ICT multinationals and global outsourcers to invest in Sri Lanka and facilitating their partnerships with local ICT enterprises.

The program is expected to achieve four main outcomes:

- Greater employment in the ICT sector
- Improved competitiveness of local ICT-user industries
- Higher quality of ICT industry professionals
- Greater foreign investment in the local software and IT-enabled services industry and in local ICT-training institutions

An ICT capacity-building fund has been established to provide incentives to achieve these outcomes. The fund uses competitive grants and fee-for-service contracting to finance and pilot a wide range of initiatives (see chapter 5).

Program 3: Regional Telecommunications Network Development

The regional telecommunications network development program is designed to promote competitive and affordable telecommunications services in the regions with the poorest populations, in those with low connectivity, and in those affected by conflict—the deep South, the North, and the East. The program is also aimed at integrating communities throughout the country by providing appropriate channels for e-government, e-commerce, and e-learning services. The program is expected to achieve the following goals:

- Increase connectivity and the affordability of communication and Internet services

- Reduce transaction costs for citizens and businesses throughout the economy
- Expand private investment in information infrastructure and associated services, increasing economic activity in connected areas

To encourage private participation, and recognizing that service provision in some areas might not produce attractive financial returns, the government will provide subsidies, financed by a market mechanism, for private telecommunications operators in the targeted regions. The subsidies are to be awarded through international competitive bidding, a least-cost subsidy scheme aimed at efficient allocation of the limited public resources for catalyzing private investment and rural service provision (see chapter 6).

The program is closely coordinated with the telecenter program, with which there are strong interdependencies. The coordination is aimed at ensuring high-quality connectivity for the newly established telecenters while also enhancing demand for the services of the newly created telecommunications networks. By 2007, when fully developed, the regional networks are expected to provide broadband connections for at least the 200 telecenters selected for the first phase of the telecenter program.[8] The location of the telecenters and the demand they generate are critical to the design and economic sustainability of the networks as well as to the sustainability of the telecenters. And joint design and coordinated implementation of the two programs are expected to reduce the subsidies and enhance the viability of both.

Program 4: Telecenter Development

The telecenter development program aims to empower the population in poor rural areas of the South, North, and East through affordable community access to ICTs. Telecenters are being progressively established in rural areas, with the first phase covering at least 200 telecenters in the poorest regions. Voucher schemes will enhance demand from the target population (youth, women, farmers, students, marginalized groups, and small and medium-size enterprises).

The program also includes community outreach activities—distance learning for the target population, computer literacy training for teachers in rural areas, and use of telecenter facilities by rural secondary schools in support of their academic programs. Grassroots initiatives funded under the e-society program generate local content and services delivered through the telecenters.

The telecenter program is expected to produce the following benefits:

- Availability of affordable basic communication services (voice, fax, e-mail, and Internet access) and office services and community information in rural and disadvantaged areas
- Enhanced access to social services (public services and distance education) and to private sector services
- E-commerce services and support to local industry development, leading to higher employment and entrepreneurship in rural areas
- Mobilization of local knowledge and empowerment of target groups through community-driven development

The program follows a sequence of steps to select telecenter locations for optimal impact, to select and prepare local entrepreneurs to operate the telecenters, to promote community involvement, and to build institutional support for sustainability and scaling up (for more on the program, see chapters 7 and 8).

Program 5: Reengineering Government

The reengineering government, or e-government, program pursues major improvements in the government's efficiency, transparency, effectiveness, and quality of services. It also supports fundamental reforms under way in governance and public management by applying new technology and reengineering work processes. The program will have countrywide impact, providing network, e-mail, and Internet access in all government agencies and reaching a quarter of the population as directly targeted beneficiaries.

The e-government program emphasizes the following advantages:

- Client-focused services—making public services truly citizen-centric and ensuring equity in access to services regardless of geography
- Transparency in government operations and accountability for service standards—bringing about a new governance framework enabled by ICT
- Interconnection of government agencies—securing electronic sharing of information across agencies and achieving higher productivity through improved interaction
- Public–private partnerships—introducing selective participation of the private sector in public service delivery where that sector can perform more efficiently and effectively than the public sector

The program is flexibly designed to allow project activities to be scaled up or down on the basis of an annual review of results and a midterm progress assessment.

Developing a Guiding Framework of Policies and Standards. An ICT governance framework is being developed to guide the use of new technology in the public sector. Among the key policies are the following:

- Requirement for cost-benefit analyses of major proposed ICT investments
- Policy preference for outsourcing data processing, system development, system operation, and network management services to the private sector
- Requirement for strategic information systems plans by agencies
- Mandatory adherence to governmentwide standards guided by governmentwide architectures. Technical architectures (information, application, technology, communication, security, and service architectures) provide the conceptual map for designing and using ICT applications in ways that support the robust and flexible evolution of e-government.

Deploying an Information Technology Infrastructure for Government. Specialized service-processing software and Web portals are linking all government agencies, information, and services. Lankanet, a government-wide data communication network, comprises initial and future workstations of government. Once the first phase is completed, Lankanet will connect around 5,000 fully networked workstations with e-mail, office services, printing services, data management services, and access to the Internet. Operation and technical support are provided by the private sector under a renewable, multiyear service contract.

E-Gate, combining specialized middleware (software connecting different applications) and hardware, enables single window delivery of services, provides a growing number of common services (authentication, payment, and gateway), and supports the use and integration of legacy applications during their remaining useful life. This system operates in a high-security, state-of-the-art data center hosted by a private company under a multiyear service contract.

The country portal, the third key part of the government's technology infrastructure, is conceptually a single, highly refined Web site offering a consistent, client-oriented interface for information and services from

the government. It is the host application for integrated delivery of groups of services ranging from utility payments to the issuance of permits, licenses, certificates, and identification documents to citizens and businesses. It also hosts the common front-end of government-to-business applications such as e-procurement. The country portal will probably be operated and hosted by a private firm under a multiyear service contract.

Providing Large-Scale Training. More than 6,000 government staff, 3,500 managers, 600 chief innovation officers, and 1,200 network specialists are receiving training aimed at creating the skilled human resources needed for electronic governance. Given the scale, risk, and cost, the training services are procured through multiple contracts with different firms. Special attention is being given to building a cadre of e-leaders to help bridge the gap between policy makers and public managers on the one hand and ICT managers and specialists on the other.

Reengineering Public Sector Work Processes. Before the training program in each government agency, a business process reengineering study is carried out to inform the design of applications and the timing and content of the training. The reengineering program also includes developing and deploying major applications aimed at benefiting more than 2 million citizens and businesses—10 percent of the population. The areas representing immediate priorities, identified through a prioritization process (see the forthcoming book on the Sri Lanka experience), include motoring, employment, pension, and procurement systems (box 3.1).

Program 6: e-Society

The e-society program promotes the innovative use of ICT to meet the economic and social needs of the most vulnerable groups in Sri Lanka and to empower civil society through affordable access to information, communication, and local content. It also increases awareness among the rural and urban poor of how ICT can benefit their lives. The program targets a range of outcomes:

- Better access to agricultural extension, education, and health services
- ICT services tailored to the priority needs of specific communities
- Enriched local content and local radio programs
- Better access to global knowledge in local languages
- Training opportunities for youth and women

Box 3.1

What e-Government Services Are Priorities?

The following e-government services represent immediate priorities:

- *E-motoring*—to ensure prompt issuance of driver's licenses, create and maintain a motor vehicle registry, and ensure efficient transfer of vehicle ownership.
- *E-employment*—to provide access to information and services for Sri Lankans seeking work overseas, for local recruitment agencies seeking job order approvals, and for overseas recruitment agencies seeking to connect to the Sri Lankan labor market through local agencies.
- *E-pensions*—to ensure prompt processing of applications for public and private pensions, permit verification of pension savings and submission of appeals, allow easy changes in personal information and pension payment arrangements, and generate pension statistics.
- *E-procurement*—to disseminate up-to-date information on all public business opportunities and contract awards, the timetable for pending transactions, and related legal, regulatory, and procedural information. During a second phase the system will incorporate electronic payments and procurement transactions.
- *E–citizen ID*—to register all Sri Lankans in a single database and issue a unique national citizen identification card. The system adheres to the strict security and confidentiality policies developed under the ICT policy, leadership, and institutional development program.
- *E–leadership pilots*—to provide electronic support systems for the political leadership so as to improve effectiveness, efficiency, transparency, and information sharing in key governance functions. Initiated during program preparation, these pilots include e-Parliament, e-president, and e-Cabinet systems.

Source: ICT Agency, Sri Lanka.

- Better communication services for migrant workers (mostly women)
- A communication platform to promote cultural dialogue and mutual understanding (PeaceNet)

The program also seeks to empower communities and grassroots organizations to innovate new ways to improve rural livelihoods. It uses a bottom-up approach to solicit innovative solutions for the use of ICT by women, the rural poor, and those displaced by conflict or living in conflict-affected areas. It develops partnerships and financing schemes to scale up successful pilots and promising innovations.

The program awards grants for pilot projects on a competitive basis to local community organizations, NGOs, private companies, or public social sector institutions. These pilots may be scaled up if evaluation suggests that expansion or replication in other locations will provide greater benefits.

Through the grants and capacity-building initiatives, the e-society program builds and fosters community networks and community partnerships with government, the private sector, and local NGOs. This should help strengthen local capacity and social capital. It should also contribute to peace and equity by connecting and empowering the country's most vulnerable poor groups. In addition, balanced access to information and equitable representation of societal groups promotes growth, aids in narrowing gaps between urban and rural areas, and helps integrate postconflict regions.

An Evolving Program Design

The design of the e–Sri Lanka program engendered a strong knowledge-based partnership with the World Bank, the primary funding agent, and the emergence of the newly created ICT Agency as a learning organization. That design has made all the difference in ensuring that it serves as a guiding framework for the program—allowing further creation and adaptation—not a blueprint that would become outdated with the changing environment in Sri Lanka.

But the ICT Agency operates in a highly charged political environment, and the success of the program inevitably depends on political leadership and stakeholder support. As with many visible programs, some aspects of e–Sri Lanka have become politicized, such as the telecenter program and telecommunications reforms. Support for peace, a key theme of e–Sri Lanka, appears to have been marginalized. The board of the ICT Agency, its effectiveness as a governance mechanism, and the voice of the private sector have been weakened. But despite growing political demands, the ICT Agency has continued to strike a balance in the e–Sri Lanka program, remaining responsive to changes in the authorizing environment while maintaining the coherence of the program.

The early implementation of pilots and the changes in the governing coalition have called for continued evolution and faster learning. Lessons from pilots (in e-government, distance learning, and other areas) have been integrated into the program. Other changes in the program design reflect growing demands on the ICT Agency to respond to urgent needs, new political realities, and national emergencies. Following are examples

of design adaptations one year (as of January 2006) after implementation of the full-scale program began.[9]

Refinements in e-Leadership and ICT Policy

With growing awareness that e-leadership is at the heart of the e–Sri Lanka program, the government plans to amend the ICT Act to remove the sunset clause for the ICT Agency. This clause was a necessary compromise given early political opposition to creating a relatively autonomous agency and early skepticism in the World Bank. Now there is sufficient political consensus that the ICT Agency has proved to be indispensable to program implementation and an awareness that the program should grow beyond the time frame of a Bank-financed project. There is also a changing perception of e-leadership. It is now viewed as a shared responsibility among a cadre of top leaders and chief innovation officers throughout the government, and training programs and communities of practice are evolving accordingly.

In the ICT Agency there is increasing awareness that implementing the program requires further development of policies and institutional measures to secure the authorizing environment for itself and the program. Establishing such an environment is not a one-shot affair, particularly in a turbulent political setting. New measures are continually proposed. One is to establish a governmentwide approach to ICT investment, to be implemented by the Ministry of Finance through the annual budget and with the ICT Agency serving as technical adviser. A second is to initiate a national process for formulating ICT policy. The process, to be consultative and inclusive, should deepen ownership across all ministries. A third is to further develop the role of chief innovation officers as a national network of change agents and to refine their mode of interaction with the ICT Agency.

Meanwhile, a world-class framework of e-laws has been developed or presented for consideration by the Parliament, including laws relating to electronic transactions and data protection. New laws continue to be proposed. The ICT Agency has become a champion of the legal reforms needed to build a secure environment for e-government, e-commerce, IT-enabled services, and investments in business process outsourcing—and has learned to strategize to move these reforms through the labyrinth of concerned institutions.

Strategic communications has emerged as a vital activity of the e-leadership program. Responding to the challenge of an uncertain authorizing environment and to the opportunity to leverage the e–Sri Lanka *brand*, the ICT Agency has diversified its communication channels. By

January 2006, these channels included a weekly TV program, a quarterly newsletter, local carnivals, targeted awareness campaigns, training for journalists, radio programs and newspaper articles in local languages, the ICT Agency Web site and discussion forum, presentations at regional and international forums, and invited presentations by CEOs of leading ICT multinationals.

Delays and Experiments in Information Infrastructure

On the telecommunications front, the most critical developments are the slowdown of the reform agenda and the opposition of incumbent telecommunications operators to the use of the least-cost subsidy scheme to build the regional network. Delays attributable to legal challenges by the operators and changes in market conditions point to a need to continually review and possibly revise the infrastructure strategy.

In the telecenter program, an important deviation occurred from the original design. The elected governments of 2004 and 2005 have given rural development high priority, and political instability has put an even greater premium on quick results. Thus, the ICT Agency has faced intense pressure to show visible results in rural areas by adopting an alternative to the business-based model developed under e–Sri Lanka. Though likely to be developmentally superior and more financially sustainable, the original model takes time to implement. It sets challenging conditions (to achieve financial sustainability within two or three years, even in poor areas of the country), and the process laid out for competitive bidding and transparent subsidies has been demanding.

The complementary model, a scaled-down investment called e-library—an ICT service center, or *nanasala*—is commonly hosted in temples. This model is driven by a vision of the temple as a traditional seat of learning. It is also driven by political branding. When hosted in the larger temples, e-libraries would have the support and financial backing of powerful institutions and would probably be visited by large numbers of people. But e-libraries follow no clear business model, and operators have no market incentives to serve their community.

Challenges in Reengineering Government

E-government has proved to be the most challenging program given the weak incentives in the civil service and the silo mentality of ministries. Political changes have continued to weaken the incentives for public accountability and for deep institutional and process changes. The procurement processes of the government and the Bank are at times too

slow to cope with fast-moving technologies and too frustrating for the business-like ICT Agency. Process reengineering, systems development, and rigorous requirements for international competitive bidding all take time. Yet the government is eager to show early results so as to foster ownership and sustain political commitment to the program.

These conflicting demands are leading to mission creep, with the ICT Agency taking on new and less strategic activities under the e-government program. Still, the pressure for early results may generate less demanding but quick-win projects. One possible example is the government's commitment to developing information centers to provide citizens access to basic public information on ministries. But even these technically easy projects may pose challenges in developing content and securing collaboration among government agencies.

New Grassroots Initiatives

The two national funds, for ICT capacity building and industry promotion and for e-society initiatives, have generated the greatest interest at the grassroots, prompting a response from civil society and private sector organizations far beyond expectations. The strong response to calls for proposals suggests that the government will inevitably need to mobilize donor and other sources of funding to sustain (if not scale up) the program. The focus groups have been refining and adapting the fund designs, and their flexibility has allowed new and innovative features to continually be added. The funds are also stimulating initiatives to engage the ICT Agency as a catalyst in creating an enabling environment for private sector promotion and innovation, though these initiatives do not depend on the funds for financing.

Because the rigorous mechanisms and contractual arrangements for the two funds have taken time to establish, the ICT Agency launched a series of its own initiatives to lay the groundwork for the funds. These initiatives aim to develop local content and promote the ICT industry in partnership with NGOs, professional associations, the private sector, and ICT multinationals. The agency also identified local initiatives initiated by grassroots organizations and partnered with others to adapt and scale up these homegrown innovations.

Notes

1. The description of the program in this chapter is close to that prepared by the author and the joint World Bank–ICT Agency team in the Bank's appraisal

document on the e–Sri Lanka project, then negotiated with the government team and presented to the Bank's Board for approval in September 2004.

2. At the design stage for e–Sri Lanka more than 200 members of Parliament shared a single Internet terminal.
3. See UNDP (2001) on making new technologies work for development, and Hanna, Guy, and Arnold (1995) on the diffusion of information technology in industrial countries.
4. Outcome indicators for each component program are detailed and managed by the ICT Agency in partnership with a specialized monitoring and evaluation agent.
5. Addressing ICT crimes requires examining the criminal implications of spamming and e-surveillance and reviewing procedural measures in the Code of Criminal Procedure Act of 1979 to ensure the proper investigation of computer crimes. It also requires facilitating the establishment of a specialized Cybercrime Unit at the Police Department.
6. The lack of a framework for data protection prevents the free flow of personal data and information from the European Union (EU) for data center and call center operations. Required are legislative or other measures such as the adoption of safe harbor principles, technical advice on negotiating with the EU Legal Office in Brussels to ensure that Sri Lanka meets the requirements of the EU Directive on Data Protection, and institutional development relating to data protection and privacy issues.
7. Protection of intellectual property rights requires examining the implications of the World Intellectual Property Organization (WIPO) Copyright Treaty and WIPO Performance and Phonograms Treaty, and introducing amendments to the Intellectual Property Code, in consultation with the National Intellectual Property Office of Sri Lanka, to give effect to these treaties.
8. In the interim, these telecenters are served through a very small aperture terminal, or VSAT (satellite), connectivity contract with a regional operator.
9. This is not a formal evaluation of implementation or results. Such an evaluation will be carried out only after project implementation is complete, projected to be in 2009.