10. ICT-led innovations in labour administration: Sri Lanka's labour inspection systems application

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10.1 INTRODUCTION

Characterized by low earnings, poor conditions of work, low levels of productivity and the absence of social security, informality has been a persistent feature of economic backwardness in many parts of the world. For example, in 2016, at least 61 per cent of the world's employed population was informally employed, with emerging and developing countries accounting for the bulk of this population. South Asia had the highest rate of informality, with an overwhelming 88 per cent of all employment being informal in 2016 (ILO, 2018).

The prevalence and persistence of informal employment poses a serious challenge for the Sustainable Development Agenda. For example, Sustainable Development Goal (SDG) 1 calls for the reduction of poverty everywhere leaving no one behind, while SDG 8 calls for the promotion of inclusive and sustainable economic growth, employment and decent work for all. ILO's Recommendation 204 (2015) also concerns the transition of workers from informal to formal employment, preventing the informalization of formal economy jobs, and promoting the creation, preservation and sustainability of enterprises and decent jobs in the formal economy.

However, effective governance through strong institutions is essential to achieve these and other SDGs (UN ECOSOC, 2019). Hence it follows that the creation of decent jobs requires, among other factors, an effective and responsive labour administration system that can monitor and enforce statutory labour standards to ensure that decent work conditions are met. But the effectiveness and strength of institutions depends on many elements, not least the extent to which hierarchical bureaucratic structures and constricting red tape make them functionally sub-optimal and unresponsive to the needs of the public. There is now a vast literature on the relationship between bureaucratic structures and organizational performance (for example, see Bozeman, 2000;

Matte, 2017; Wesley et al., 2019) as the subject of transformation in public sector organizations has generated much interest in the public administration literature. This is because public sector entities are being forced to modernize to become more efficient and respond better to the needs of citizens in a changing economic, political, competitive and technological environment (Kuipers et al., 2013; Philippidou et al., 2004). Modernization is regarded as essential because bureaucratic organizations do not leave individuals much room for initiative and discretion. Such organizations are particularly stable with respect to technology and the work environment and are likely to be slow and inflexible due to the formal prescriptions of roles and the centralization of power (Philippidou et al., 2004).

Studies of the introduction of information and communications technology (ICT) to make administrative and governance structures more effective constitute an important strand in this literature as ICT can improve institutional performance in at least two ways. First, it can make bureaucratic organizations more effective in terms of resource utilization, time-saving and decision-making quality. Second, it can bring about structural changes in outcomes in the long term such as centralization, reduction in red tape and de-sectarianism (Kim et al., 2014). ICTs can also catalyse and enable 'openness' in the transformation of organizations (Islam et al., 2019). And while some observers look to ICT to reduce the role of the bureaucracy in government organizations, others have argued that ICT can support the bureaucracy through the simplification and closure of functions (Cordella and Tempini, 2015).

Given the potential of ICT to transform government structures and make them more effective, many governments the world over have adopted e-government to improve government operations, but with varied success. Developing countries have usually lagged far behind, held back by their slow pace of modernization, hierarchical organizational structures, and antiquated systems, rules and procedures (Liu and Yuan, 2015). In fact, while ICT has the potential to transform organizational structures and make them more effective, it has been pointed out that bureaucratic characteristics such as hierarchy, technical competence and red tape can also negatively influence and impede ICT's positive impact on organizational structure and effectiveness (Kim et al., 2014). Attempts to introduce changes by applying modern technology can therefore meet with considerable resistance.

In such situations, leadership can play a significant role in convincing different groups of the need for change and directing the available resources to achieve maximum employee welfare. In the traditional type of bureaucratic organization, effective leadership provides a sense of cohesiveness, an overarching sense of direction and vision, enables alignment with changes in the labour market, provides a healthy mechanism for innovation and creativity, and becomes a resource for invigorating the organization's culture (Van Wart,

2003). In fact, management theory well recognizes the critical role that leadership plays in implementing innovative changes in any organization (Kuipers et al., 2013; Trottier et al., 2008; Van Wart, 2003). Leaders need to have the ability and the capacity to be innovators and create organizational structures that welcome new technology and innovative changes. Their ability to demonstrate and reinforce management's enthusiasm, involvement, commitment and support is also critical for the buy-in of all stakeholders, particularly of those in hierarchical public sector organizations.

Liu and Yuan (2015) argue that if organizations are to successfully adopt ICT there must be systematic analyses of the interactions among stakeholders and ICTs to create the institutional environment needed for positive outcomes. They hold that it is only when this relationship is understood can innovative ICTs be seamlessly incorporated into the governance structure.

Accordingly, this chapter reviews the introduction of ICT to Sri Lanka's labour administration to extract lessons that are likely to be useful for other countries which want to move in a similar direction. The subject is of critical policy significance for Sri Lanka too, as informality accounted for 68 per cent of total employment in the country in 2016, though considerably lower than the regional average of 88 per cent (Chandrasiri and Gunatilaka, 2019). In fact, the economy's failure to generate a sufficient volume of formal private sector jobs despite a reasonable rate of economic growth (an annual average of 5.5 per cent between 2010 and 2018) has long concerned policymakers. Nevertheless, beginning in 2012, Sri Lanka has introduced ICT to its labour administration to streamline and integrate the core functions of labour inspection and prosecution. The ILO has steadfastly supported these efforts which are in line with its Recommendation 204 (2015) which is concerned with preventing formal economy jobs from becoming informal. This chapter documents this experience and extracts the lessons learned about factors making for success and failure.

This analysis of Sri Lanka's experience with introducing ICT to labour administration is based primarily on information collected in 2014 through in-depth interviews with key stakeholders,¹ and the analysis of information collected through the administration of a structured questionnaire among Labour Officers and Factory Inspectors attached to the Department of Labour (DoL), tasked with inspecting establishments. The questionnaire was pilot tested among a few key individuals before it was administered to the target respondents.² A further round of in-depth interviews with stakeholders³ was carried out in 2018 to collect information about subsequent developments. The analysis also draws on published and unpublished documents of the DoL and the Ministry of Labour and Labour Relations.

The next section describes the background. This is followed by an account of the introduction of ICT, focusing on a Labour Inspection Systems Application

(LISA). The sections that follow review this experience while the final section concludes and draws its policy implications.

10.2 BACKGROUND

In 2016, 15.5 million Sri Lankans were of working age while slightly more than half were employed (DCS, 2017). While three-quarters of the male population of working age were employed or looking for work, women's participation rates were only half the rate of males. Formal employment accounted for only one-third of all those employed, and of that third, the public sector accounted for half (Figure 10.1). Private formal employment accounted for a meagre 15 per cent, while private informal employees, own-account workers and family workers made up 26 per cent, 33 per cent and 8 per cent of total employment, respectively. Informality dominated the large economic sectors such as agriculture and construction while small sectors such as finance were more formal (Chandrasiri and Gunatilaka, 2019). A quarter of all Sri Lankans employed in the private sector worked in large firms with more than 100 employees, but almost as many worked in microenterprises with fewer than five employees, almost all of which were informal (Chandrasiri and Gunatilaka, 2019). The relatively small share of private sector employment accounted for by small and medium-sized firms is cause for concern: small and medium-sized firms are generally found to be dynamic and innovative, with the greatest potential to grow.

While the nature of work itself is changing in Sri Lanka as elsewhere with increasing automation of processes and the digitization of systems, existing legal structures remain out of sync with these technological developments. For example, Sri Lanka's labour law does not recognize part-time work, flexi-work or agile work. Hence, statutory entitlements for these forms of work remain undefined. Thus, while labour law reform needs to be part of the policy response to address the issue of informality, the effective inspection and enforcement of statutory labour standards needs to be at the core of any policy framework and strategy aiming to achieve SDG 8 and ILO's Recommendation 204 (2015).

Sri Lanka's Department of Labour (DoL) is the statutory authority whose main function is the monitoring and enforcement of labour laws. It was first established in 1923 with its core function being the administration of labour to (a) ensure labour standards through inspection and prosecution and (b) to settle industrial disputes through mediation and conciliation. In addition, the DoL operates social security schemes such as the Employees' Provident Fund and the Employees' Trust Fund. It collects, compiles and disseminates labour statistics, operates a Labour Market Information Service (LMIS), and works closely with its parent ministry in fulfilling Sri Lanka's obligations as

Source: Chandrasiri and Gunatilaka (2019), using microdata from the Department of Census and Statistics' Labour Force Survey 2016.

Figure 10.1 Job status of the employed, 2016

a member of the ILO. The DoL carries out its mandate through 12 divisions headed by Commissioners of Labour operating under the overall leadership of the Commissioner General. In 2020 it employed about 500 labour officers and more than 30 engineers to inspect factories and construction sites. However, it suffers from structural weaknesses. Poor coordination between the 12 divisions, the absence of up-to-date information and the limited sharing of any available information that would facilitate planning and monitoring of progress are some of the difficulties DoL faces while executing its functions.

One of DoL's biggest challenges is the formidable complexity of the body of labour law that the department must monitor and enforce. Instead of a Labour Code, Sri Lanka's corpus of labour law is the result of a gradual accretion of labour statutes and case law over a period of nearly 90 years. The most important of these laws are set out in the chronological order of their enactment in Table 10.1 and the provisions in several need amendment, such as those dealing with women's employment (Ranaraja and Hassendeen, 2016). The complex, statute-oriented system is time-consuming to administer, and the data generated manually through inspection is not amenable to analysis in a way that is useful and relevant for policy formulation, planning and progress monitoring. In fact, it was only in 2005 that the system of inspecting establishments separately under each statute was consolidated into one inspection form with six parts which still runs to 15 pages including evaluation of the inspection by the supervising officer.

While the laws have been difficult to monitor, hard to enforce and urgently need reform, economic growth has expanded exponentially the number of establishments needing to be inspected. But the resources with which it needs to be done have not been forthcoming. In fact, human capital constraints are probably the biggest drags on the effectiveness of labour administration. Officers at the DoL interviewed for the purpose of this study were unanimous in pointing out that labour officers were heavily overworked, having to spend two days each week on establishment visits, one day in court, and at least one day in office for public day, leaving only one working day each week to prepare the minimum of 20 reports that they have to file each month. They also needed to carry out tasks related to reconciliation and mediation. Poor training has also affected their ability to deliver. A related issue which emerged was that while many labour officers lack the skills and technical knowledge to perform their duties well, the repetitive nature of the training provided, and the outdated pedagogy used made them reluctant to undertake training. Previously the DoL had a strong training division which conducted appropriate training programmes which gave newly recruited labour officers the theoretical and practical training necessary to perform their roles efficiently. However, the DoL no longer provided this kind of comprehensive training programme. Inevitably, the quality of work performed by labour officers has deteriorated.

These constraints have been compounded by management problems arising from the tectonic fault line between officers of the Sri Lanka Administrative Service (SLAS) who enter the department at supervisory and management level, and the career labour officers who carry out the fieldwork related to inspection, mediation and conciliation. In-depth interviews with both categories of officers revealed the extent of these internal divisions. For example, career labour officers interviewed pointed out that while on-the-job training makes labour officers knowledgeable and experienced in Sri Lanka's complex system of labour laws, the process of prosecution and the justice system, as well as disputes settlement and mediation in the field, SLAS officers have no such experience. Yet, SLAS officers are privileged over DoL officers in promotions to senior management levels, despite often having shorter periods of service and less experience of the department's core functions. This practice has demotivated the labour officers, who regard their prospects for promotion and career advancement as being blocked by the entry of SLAS officers into higher tiers of management. While SLAS officers lack the experience in labour matters needed to supervise field activities and staff, they almost invariably move on to other institutions in the public administration system after a couple of years, taking with them even the little knowledge, experience and institutional memory garnered. This has impeded capacity building, policy and programme continuity, the introduction of technology, effective monitoring, and course correction. But while labour officers regard the SLAS's entry

Table 10.1 Sri Lanka's most important labour laws

Name of Act	Objectives
1. The Workmen's Compensation Ordinance No. 19 of 1934 and amendments	Provides for the payment of compensation to workers who suffer accidents at work or who suffer from an occupational disease.
2. The Trade Unions Ordinance No. 14 of 1935 and amendments	Provides for the registration, control and cancellation of unions.
3. The Maternity Benefits Ordinance 32 of 1939 and amendments	Covers all female workers other than those provided for under the Shop and Office Employees' Act.
4. The Wages Boards Ordinance 27 of 1941	Prescribes general conditions in relation to salaries and wages as well as conditions related to specific trades. Provides for the establishment of specific wages boards for different trades to regulate the terms and conditions of employment.
5. The Factories' Ordinance 45 of 1942 and amendments	Prescribes conditions and rules in relation to workers making special provisions in respect of women and young persons.
6. The Industrial Disputes Act 43 of 1950 and amendments	Provides for the settlement of disputes through conciliation and arbitration and the setting up of labour tribunals.
7. The Shop and Office Employees' Act 19 of 1954 and amendments	Prescribes the terms and conditions applicable to workers in shops, offices and similar establishments.
8. Employment of Women, Young Persons and Children's Act 47 of 1956 and amendments	Regulates the employment of children, youth and women especially in relation to hours of work.
9. Employees' Provident Fund Act 15 of 1958 and amendments	Covers all workers and lays down rules for contribution by employers and workers. Also provides for private funds and pension schemes.
10. The Termination of Employment (Special Provisions) of Workmen's Act 45 of 1971 and amendments	Controls the termination of employment on non-disciplinary grounds as well as those in scheduled employment.
11. The Employees' Trust Fund Act 46 of 1980 and amendments	Provides for social security contributions to the Fund only from the employer.
12. The Payment of Gratuity Act 12 of 1983 and amendments	Provides for the payment of gratuity for workers who have at least five years of service irrespective of whether they are dismissed, leave or die in service subject to certain conditions.

Name of Act	Objectives
13. Budgetary Relief Allowance Act no 4 of 2016	Provides for the payment of a budgetary relief allowance by employers to workers and for connected or incidental matters.
14. National Minimum Wage Act no 3 of 2016	Sets out the National Minimum Wage for workers as well as the administrative formalities for wage recording and payment. Set the national minimum monthly wage at 10,000 rupees and the national minimum daily wage of a worker at 400 rupees.

into the DoL as having eroded supervisory and mentoring capability of every tier of management, in-depth interviews with SLAS managers conducted for this study suggest that they saw themselves as more effective in performing tasks and thinking out of the box. They believed that while the department's own officers have knowledge and experience, they were unable to leverage that knowledge effectively for management purposes. During our interviews we observed that such diametrically opposed views made for top-down, non-participatory decision-making by managers on the one hand and resentful non-cooperation by field officers on the other. Introducing ICT to labour administration in this institutional environment was bound to be a challenging task.

10.3 INTRODUCING AND IMPLEMENTING LISA

Reforming the labour inspection system and integrating the entire labour administration system first became a key item on the Ministry of Labour's agenda as far back as 2000. After a couple of abortive attempts at computerizing systems initiated within the DoL itself, the Ministry sought technical assistance from ILO following a mission in 2004. In response, the ILO provided technical assistance for an assessment of computer-based applications in labour administration and inspection in Sri Lanka, with the objective of identifying ways to incorporate ICT applications and thereby improve the efficiency and productivity of the DoL. The move towards an integrated, ICT-based labour administration system gathered momentum with an internal case study by DoL which noted serious inefficiencies in the manual system, including the heavy accumulation of inspection forms at the level of the labour officers which were not being processed for follow-up work. The study also highlighted problems associated with internal coordination, progress monitoring, and the huge volume of work at the labour officers' level. It pointed out the advantages to be had from an IT-based labour inspection system and underlined the importance of implementing one.

Given the keen interest and demonstrated commitment of key officials in the Ministry and the DoL at the time to integrate and computerize systems, the ILO used funding from the United States Department of Labor (USDOL) to contract the services of a non-profit technology services provider in the social services sector, to design and develop an information and communication system to automate the labour inspection and related processes. The project was technically overseen by the Information and Communication Technology Agency (ICTA) of the government of Sri Lanka. Subsequently, the contract with this service provider was terminated due to violation of the agreement by the provider, and another service provider was contracted to continue the work. This company, too, failed to deliver expected technical services and finally the ILO decided to hire the two ICT consultants who had been developing the system from its very inception to continue the project. This took two more years and the system subsequently adopted the acronym of the project which built it, that is, the Labour Information Systems Application, or LISA.

LISA was to consist of the following modules: (1) Inspection, complaints and disputes; (2) Prosecutions; (3) Digital library; (4) Occupation, health and safety (OSH); and (5) Statistics.⁴ The inspection, complaints and disputes module aimed at building a database into which the information gathered from physical inspections is entered, and in which complaints handled by the complaints desk are registered. Meanwhile, the prosecutions module created a legal desk home page and a case register enabling monthly report generation and a detailed view of the original complaints. Updating of information related to the cases as well as the management of cases was made possible with an audit trail of ongoing edits to cases with details of cases due to be taken up. The digital library module was to be constructed as a repository of scanned documents related to inspections, follow-up inspections, complaints and legal cases. The OSH module was to facilitate scheduling of inspections and related functions and was integrated with other processes related to complaints, petitions and dispute resolution. Finally, the labour statistics module aimed to build a data catalogue sourcing data from LISA's module for inspections, complaints and industrial disputes and the module related to legal procedures and prosecutions. It was to generate statistics and reports from the data captured by the system. In addition to the five schedules covering core functions of the DoL, an overarching objective of the system was to improve coordination between labour institutions across the country and create a 'virtual workspace', allowing staff to exchange information and data without being impeded by geographical separation, administrative barriers and institutional silos, thereby establishing an integrated information sharing and management system within the intra-institutional network of the Ministry, DoL and other relevant government agencies.

With much of LISA's architecture in place by 2012, the DoL piloted LISA in a couple of districts and began the process of implementing it island-wide. However, officials tasked with implementing the project whom we interviewed stated that automating and integrating the erstwhile manual-based system of labour inspection and administration did not proceed according to plan due to resistance by the labour officers. Despite being provided with tablets with which they could enter inspection data into the system, along with the necessary training, the labour officers refused to move from the manual-based system to an electronic system, arguing that they already had a heavy workload. The fact that their movements could be monitored electronically if GPS tracking devices were installed on the tablets may have also played a part and even though DoL assured labour officers that GPS would not be used, the labour officers could not be persuaded. So, the DoL was forced to have management assistants in the district offices enter the information in the inspection reports submitted by labour officers into LISA's database. Thanks to this strategy, progress in implementing LISA's field-related functions of inspections and complaints has been respectable even though performance has varied across districts. Underlying factors appear to be the interest and commitment of officials at district level and the availability of infrastructure facilities.

For example, two of the better performing districts outside of Western Province where the capital city Colombo is located are Galle and Kurunegala, which together accounted for 11 per cent of employment in non-agricultural establishments in 2013/14 (DCS, 2015). Each of these two districts added on average 70 complaints every month to LISA's database between June 2016 and June 2018, so that by the end of the period, they each had more than 1,000 cases in their databases. Of these, roughly 60–70 per cent had been processed and concluded while the remainder were ongoing. In contrast, the number of complaints entered in LISA's database in the poorly performing districts is low and the number of ongoing cases is also correspondingly remarkably high. These variations are mainly due to administrative and operational inefficiencies at district level as well as the low rates at which some poorly performing labour officers file their reports. In fact, poorly performing labour officers are present even in the best performing districts. Progress with implementing the legal module is also better in the better performing districts, with Galle and Kurunegala, for example, reporting satisfactory results in terms of the number of cases taken up for legal action.

However, it should be noted that while the system itself was supposed to generate information about the number of cases added to the database and how many of them are ongoing, along with information related to the performance of labour officers, this function is currently not in operation. While some summary tables indicating the macro picture of work progress such as

the cases due for hearing over the next month can be extracted, the management information system (MIS) functions of the system are non-operational and supervisory officers located in DoL's head office in Colombo are still dependent on periodic, paper-based progress reports from the district offices in order to monitor performance. In fact, the performance data from Galle and Kurunegala summarized above were extracted from such reports.

Several minor technical glitches have turned out to be major impediments to the effective functioning of the system and remained unresolved even by 2018. For example, even though the file number of each inspection was being fed into the system, the system could not automatically generate a unique serial number which could have enabled the matching of all information relating to the case and the filtering of cases according to various criteria. This made it impossible to enter key details of cases such as its geographical location into the system so that the complaint could be assigned through the system to a labour officer or the nearest district office for inspection. Nor was there a facility to reassign cases to new labour officers when labour officers handling the case transferred to other offices or moved out for any other reason. And LISA had yet to enable top management to monitor the work of zonal, district and other officers. Hence, initial expectations that LISA would enable the functioning of an effective MIS system did not materialize. In fact, Deputy Commissioners or Assistant Commissioners of Labour did not even have their own user accounts and could only access the system through the user accounts of the Commissioners of Labour. These issues have made it harder to persuade stakeholders in the department to abandon existing, paper-based systems and come on board the new automated system.

Progress with implementing the OSH, digital library and statistics modules has also been disappointing due to organizational, human resource and technical problems. In addition, during in-depth interviews, senior (Deputy Commissioner of Labour) and middle level (Assistant Commissioner of Labour) officials of the DoL in charge of implementing LISA claimed that that covert resistance by staff entrusted with these tasks retarded implementation of these modules. Nevertheless, the performance of these three modules could have been improved significantly if the top management of the DoL had been able to commit unwaveringly to project outcomes and addressed some of the outstanding impediments.

10.4 DISCUSSION

Sri Lanka's DoL experience with developing and implementing LISA offers key insights for other countries looking to introduce ICT to improve their labour administrations. First, LISA has been a prime example of the process of transformation due to technological changes and policy requirements, which

held the promise of ensuring effective compliance with labour laws essential to achieve the decent work standards entrenched in ILO's eight core conventions that Sri Lanka's government had ratified. It also had the potential to provide critical information essential for managing the DoL's core operations, as well as for evidence-based policy making for several domains of government, private sector organizations and unions.

However, being one of the oldest, largest and most well-established bureaucratic organizations in Sri Lanka, the DoL's bureaucratic culture was deeply rooted. Characteristics such as a rigid hierarchy, competing interest groups, differentiated controls and sanctions, and traditional bureaucratic decision-making and planning mechanisms, have persisted for decades, defying an economic liberalization process that began in 1977. These features impacted both directly and indirectly on the DoL's capacity to bring about innovative changes to the operational efficiency of the organization. In fact, as Raipa and Giedraityte (2014) argue, organizational behaviour and work culture in an institution can significantly affect innovative change management in an institution or, conversely, halt innovative changes in their tracks, becoming major barriers to organizational change. It is evident that such forces did indeed work to discourage, disrupt and retard the innovative changes that LISA was designed to bring about.

At the same time, the DoL's leadership was unable to facilitate stakeholder buy-in, provide an overarching sense of direction and vision, and establish a sense of cohesiveness within the organization that would have helped overcome some of the negative features of its culture. The reasons are mainly political economy related. The period during which LISA was developed and implemented saw weak coalition governments, confusion about the direction of policy, and several changes in ministerial portfolios with concomitant changes in officers in charge at the DoL, all of which stymied progress.

The uneasy cohabitation of SLAS managers and labour officers in DoL further constrained the transformational process. Differences in position and privilege between SLAS managers and DOL field staff made the latter regard the decisions taken by management as being entirely in the interests of managers and to the detriment of themselves. To date, labour officers refuse to transition to the tablet-based system of entering inspection-related data, leaving it to management assistants at the district offices to do it for them. This is a telling symptom of how the institutional malaise affecting DoL has affected LISA's implementation. The frequent change of divisional heads, for example, Commissioners of Labour, Deputy Commissioners of Labour and Assistant Commissioners of Labour, owing to the fact that most of them belonged to the SLAS and moved on, also made for discontinuity in policies and strategies, raised questions about the commitment of the leadership to implement LISA, and generated operational confusion. This has contributed to the ad hoc way

LISA has been developed and implemented and the piecemeal way in which it currently operates. In turn, these are underlying reasons as to why the system has yet to bring on board key stakeholders such as labour officers. Lack of progress with LISA's Digital library, OSH and Statistics modules, which have in turn impeded LISA's generation of a MIS, are also symptomatic of underlying management problems. The lack of a MIS in turn is likely to frustrate any future efforts to address them.

Political leadership and commitment to implementing LISA was also lacking. For example, when the labour officers resisted the full implementation of LISA through organized trade union action, the political leadership at ministry level supported the labour officers against the management, to the detriment of workers whose decent work standards needed to be ensured. To reform systems and procedures of public sector organizations, political leaders must enable managers to focus their attention entirely on organizational and national level development goals. This did not happen as the political leadership was more interested in preserving its patron-client relationships with public sector workers and their unions.

An equally important dimension of management that was found wanting was the absence of a technically competent entity within the DoL itself which could have acted as the intermediary between administrators and their requirements relating to the department's core functions and the purely technical developers of the software. As a result, the department did not have officers with the necessary IT skills to oversee the development of the software even while it was built by others. For example, there were no managers with the necessary skills whose main responsibility was to trial the system, get feedback, identify problems and liaise and negotiate with stakeholders including, most importantly, the developers of the system and its ultimate users. Hence it was almost inevitable that various technical glitches would arise and frustrate full implementation.

While LISA was essentially a project of the DoL, potential benefits could have been enhanced with the support of several other key government entities through the establishment of a top level steering committee representing the Ministry of Labour, DoL, the Employees Provident Fund, the Department of National Planning, ICTA (Information Communication and Technology Agency, the government agency responsible for implementing ICT projects in government organizations), ILO and academics from the ICT faculties in one or more of the universities in Sri Lanka. The present leadership of the DoL also believes that the design of the project could have been improved if there had been adequate consultations from the very beginning with other government agencies responsible for implementing ICT projects. As importantly, there was no mechanism to link LISA with the government's broader e-governance and monitoring system at the stage of project implementation.

Thus, Sri Lanka's experience with LISA over a period of eight years suggests that although ICT has considerable potential to improve the labour administration system and help achieve decent work objectives, several conditioning factors can influence outcomes. First, in a well-established bureaucratic organization inter- and intra-group interests and perceptions of costs and benefits are important and can act as major constraint to implement reforms. However, project ownership and technical leadership can help resolve conflicts of interest and leverage expected outputs, and this is the second important factor. For example, leadership can ensure smooth functioning of the project through intra- and inter-unit coordination, facilitating infrastructure support and winning the confidence of different formal and informal groups. LISA's experience clearly shows the impact that the absence of both types of leadership had in the delivery of functional outputs. Ideally what was needed was a transformational leader who could negotiate with key stakeholders and lead the transformation with knowledge, expertise and vision. This would have made sure that second tier leaders became embedded in the buy-in that remained even when the leader left the project. Third, broad-basing efforts to introduce ICT to the administration system through consultations with other relevant government agencies at the design stage may have helped improve its design and relevance. It would have also helped embed it within the monitoring mechanisms of the government's broad e-governance initiative and helped improve e-governance standards and potential outcomes.

10.5 LOOKING AHEAD

Given the challenges that LISA's development and implementation had to contend with, even the progress that has been achieved thus far is commendable. All stakeholders, from the top tiers of management such as the Secretary to the Ministry, the Commissioner General of Labour, the Commissioners, the Deputy Commissioners and middle managers, through to the labour officers and management assistants, continue to acknowledge the need for automation and agree that full implementation needs to be pursued. Besides, since parts of LISA are already operational, that will generate its own momentum and impetus for further implementation. Stakeholders see that there can be no rolling back and that the only movement from this point onwards is towards addressing outstanding technical issues and progressing to further implementation. Automation and digitization are rapidly becoming part of the working environment even in public sector organizations, so that the inevitability of a system such as LISA has become self-evident, along with the advantages that it can offer. Moreover, as even labour officers get more techno-savvy and become addicted to their smart phones, they may realize how much easier it

would be to use LISA to input inspection data into the system on site rather than to persist with the manual system.

The analysis of LISA in this chapter has highlighted three conditioning factors related to leadership and management that have impeded progress; first, the weak commitment of frequently changing top management; second, the rift between SLAS managers and DoL field officers; and third, the absence of in-house technical capacity to manage the process in an informed way. The first can be eased by incentivizing higher tiers of managers at DoL to automate and digitize the functions of the department. This needs to be done by including the responsibility for this in the description of their roles as well as by including the relevant tasks in the criteria they need to meet to get their increments, promotions and postings. Thus, to obtain their salary increments, for example, managers in the DoL will have to demonstrate how they have helped achieve the e-governance agenda of the department. Once this practice is established, it will be easier to incentivize the labour officers likewise.

At the same time, the festering divide between management and field staff needs to be addressed by equalizing opportunities between SLAS officers and DoL field staff for training and promotion to management positions. While issues of inequality and privilege have poisoned the space for cooperation and coherence within the department, they have also reduced the effectiveness of labour administration and stymied LISA's development and implementation. If the negative energy generated by these management problems can be neutralized, it would be possible to incentivize stakeholders in such a way that automation and digitization proceeds and enables the DoL to carry out its mandate more effectively.

DoL also needs a strong IT division staffed and led by those specially trained in IT so that the responsibility for the system can be taken over by managers with the necessary skills. The division can be made up of two types of personnel. A purely technical segment can concentrate on day to day maintenance of the system as well as on identifying outstanding and ongoing technical problems. A second segment will need to combine technical skills with management skills, as officers in this segment would need to work with other key partners including those developing the software, the management of DoL, labour officers and other stakeholders, to make sure that LISA's capabilities match the demands of DoL's core functions. It is also best that an agile software development approach is adopted in the future. As technology changes rapidly, requirements and solutions need to evolve from the collaboration of self-organized and cross-functional teams with their end users (Collier, 2011). The agile software development approach advocates adaptive planning, evolutionary development, early delivery and continual improvement, which encourages rapid and flexible response to change. In fact, several characteristics of the agile software development approach makes it particularly suited for

the organizational ecosystem of the DoL as the method emphasizes individuals and interactions over processes and tools, working software over comprehensive documentation, collaboration with users over contract negotiation and responding to change over following a plan. Advisory committees made up of management, operational level staff and even trade union leaders need to be part of the development process as they can provide their input and feedback as components of the system are developed and implemented.

10.6 CONCLUSIONS

This chapter analysed a critical innovation in labour administration that was implemented in Sri Lanka with ILO's support. It aimed to draw lessons and policy implications for other countries hoping to introduce ICT to labour administration and through that, increase the effectiveness of governance that United Nations Economic and Social Council (UN ECOSOC) has recognized as being essential to implement the sustainable development agenda.

This analysis of LISA suggests that while introducing ICT to labour administration has the potential to revolutionize work processes even in the public sector, rigid hierarchical systems, bureaucratic procedures, and intra-departmental personnel problems stemming from perceptions of unequal privileges and opportunities can and do work against the objectives of automation and digitization, much as Kim et al. (2014) suggested. Hence, key among the conditions enabling successful automation are policy continuity, clear strategies and a proactive leadership among top managers. Most critically, it also requires measures to address outstanding grievances among field staff to ensure their buy-in. These include equalizing opportunities for advancement and promotions across all those involved in labour administration. In addition, managers' roles need to be expanded to include developing and facilitating e-governance. Criteria for salary increments, promotions and placements must include performance in delivering ICT-related objectives of the organization.

This chapter has also underlined the importance of having the necessary technical capacity in-house to provide the technical leadership essential to oversee and guide the automation process. It has suggested that an agile software development approach may be more suited to deliver systems that are more closely in line with the core functions and requirements of the organization responsible for labour administration, especially in an environment of rapidly changing technologies.

Other countries looking to introduce automation and digitization to their labour administrations may want to make sure that these important conditions are in place before they embark on a programme of ICT-led modernization.

NOTES

1. Key stakeholders included the Secretary, Ministry of Labour, the Commissioner General of Labour, the Commissioners of Labour for Human Resources and Development, Industrial Relations, Enforcement, the Employees' Provident Fund, and Planning, Research, Training and Publication. We also interviewed office bearers of the Labour Officers' Trade Union and representatives of private sector establishments.
2. These findings were reported in Chandrasiri and Gunatilaka (2015). The respondents consisted of 29 labour officers, 21 factory inspectors and 11 management assistants. Respondents' level of agreement or disagreement with statements about policy support, technology-oriented change, willingness to participate in the automated system, and training needs were measured using a standard 1–5 Likert scale.
3. The stakeholders included the Commissioner General of Labour; the Commissioner of Labour for Labour Standards; the Deputy Commissioner of Labour for Enforcement; a labour officer who had been involved with LISA from its inception and was familiar with the system and how it had evolved; and a consultant to DoL entrusted with the task of implementing the system who had formerly been a Commissioner of Labour, now retired.
4. In April 2018, the ILO requested the DoL to include a women and child labour module also into LISA's system. This has also now been completed.

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