KARACHI NEIGHBORHOOD IMPROVEMENT PROJECT

A Roadmap to Reform

Business Registrations and Construction Permit Systems in Karachi

Draft

Table of Contents

1   Introduction

The World Bank Group's Doing Business (DB) Indicators shed light on how easy or difficult it is for a local entrepreneur to open and run a small to medium-size business while complying with relevant regulations. The indicators measure and track changes over time in regulations affecting 11 areas in the life cycle of a business: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, resolving insolvency and labour market regulation.

For policy makers wishing to improve their economy's regulatory environment for business, the indicators also allow easy comparisons with the regulatory environments in other economies. In addition to scores for each of the 11 indicators, Doing Business reports also provide an aggregate ranking (amongst the countries surveyed) on the overall ease of doing business. and a 'Distance to Frontier' (DTF) score An economy's DTF score is indicated on a scale from 0 to 100, where 0 represents the worst performance and 100 the best (the frontier).

The DB ranking compares economies with one another while the DTF score benchmarks economies with respect to regulatory best practice, showing the absolute distance to the best performance on each Doing Business indicator. When compared across years, the DTF score shows how much the regulatory environment for local entrepreneurs in an economy (as measured by the DB indicators) has changed over time in absolute terms, while the DB ranking can show only how much the current state of the regulatory environment relative to those in other economies.

Pakistan's relative position improved slightly in the DB 2017 report, moving to 144 out of 190 countries compared with 148 out of the 189 economies measured in the DB 2016 report. On the DTF metric, Pakistan's score rose from 49.48 in DB 2016 to 51.77 in DB 2017. While this moderate improvement is encouraging, the country still trails several regional and comparable economies (India 130, Egypt 122, China 78). To build the reform momentum, more efforts is required to improve Pakistan's business regulations and practices on both the Federal and Provincial levels. In this context, the Government of Pakistan (GoP) has requested the World Bank Group to provide it with Technical Assistance in several business environment areas, including those covered by the Doing Business indicators.

1.1   Background of the project

Within the DB methodology, the indicator scores for Karachi carry a 65 percent weighting in the national scoring (Lahore contributes the remaining 35%) thus reforms in the Province of Sindh are important both for encouraging increased private sector activity in the Province and for improving Pakistan's overall DB performance. Within the Province, most of the problems in business regulations controlled by the provincial government stem from:

- lengthy and time consuming administrative approval processes and procedures;
- lack of transparency of information;
- low automation;
- weak inter-agency coordination;
- absence of risk-management; and
- lack of public-private dialogue and dissemination of reforms.

In Sindh, the process of *business registration* involves formalities at Federal and Provincial levels. The Federal level formalities are currently manual, though will become automated with the completion of a Virtual One Stop Shop (VOSS) administrated by the Securities and Exchange Commission (SECP). Provincial level formalities are also currently manual with hard copy forms and dossiers handed over to provincial regulatory agencies, including Excise and Taxation, Sindh Employees Social Security Institution (SESSI) and the Labour Department.

With respect to *construction permits* (CP), the Sindh Building Control Authority (SBCA) is the main regulatory and supervisory body in the province tasked with approval of building plans and issuance of NOCs, in accordance with the existing building and town planning regulations. Currently the entire process is manual and paper-based. The SBCA archive, containing approximately 700,000 paper dossiers, is at risk of deterioration as it is stored in a basement, where it is exposed to heat and humidity. SBCA lacks basic hardware and software to keep records securely or even perform basic indexing operations. Excessive delays in processing and approval of cases, a weak institutional set-up, a lack of coordination among concerned departments and a lack of dissemination of plans results

in operational issues that impede SBCA's ability to perform at an optimal level. Lack of easy and correct information often leads to unnecessary delays in the CP approval process, with the consequence that the public views the process with apprehension, which in turn encourages informality.

1.2   Objectives of the project

The project is designed to improve the regulatory arrangements for two of the key DB indicators for which the provincial government has substantial or full responsibility, namely, business registration and construction permits. For business regulation, the project seeks to replicate in Sindh, the Sindh Provincial Electronic One Stop Shop (PEOSS – proposed to be named Business Registration Unit) system developed in Punjab and extend it to key business licenses. The creation of a PEOSS in Sindh will thus involve creating a unified web portal driven by a central database which will source and distribute official business profile information to provincial departments such as Excise and Taxation, Sindh Employees Social Security Institution (SESSI) and Labour Department. It is expected that, once the key business licenses are streamlined, the PEOSS system will be expanded to incorporate e-licensing for other provincial agencies.

For construction permits in Sindh, the project will support the creation of an integrated One-Window Centre (OWC) with facilitation counters from all the relevant agencies involved in construction permitting in Karachi. The OWC will deploy an online building permit platform integrated with a risk based system.

In addition to assisting with bringing about these changes, the project will work with the relevant stakeholders to:

- demonstrate how the provincial one stop shop will function in both the short and long term;
- demonstrate how the one window centre will function for the issuance of construction permits;
- identify the technical challenges that will be faced with regards to automation of the provincial one stop shop and construction permit issuance;
- identify the IT requirements that will need to be procured for the automation of provincial one stop shop and construction permits;
- identify the legal changes that will need to be made to enable the automation of provincial one stop shop and construction permits.

1.3   Layout of the report

It is intended that this report should serve as an initial implementation manual for the changes that have been planned, with greater detail and refinement added as the project progresses, as indicated immediately above. To that effect, the report has been prepared in the following manner:

- Section 2 describes the changes required to the processes;
- Section 3 details the automation requirements to implement the changes; and
- Section 4 describes the legal changes that will need to be made to support the new arrangements (this section still to be prepared).

2 Process Design

2.1 Business Registration Portal – Provincial Electronic One Stop Shop

2.1.1 Introduction

Four provincial agencies are involved in the process of business registration, as shown in the table below.

Agency Name	Registration Type	Governing Law
Excise and Taxation	Professional Tax	Sindh Professions, Trades, Callings and Employment Tax Rules 1975
Directorate of Labour	Shops, Establishments and Factories	Shops and Establishments Act 2015 Factories Act 2015
Sindh Employees Social Security Institute	Employees Social Security	Sindh Employees Social Security Act 2016
Department of Industry and Commerce	Association of Persons (Partnership firms)	Partnership Registration Act 1930

Currently, except for the excise and taxation, the registration process is completely manual. ICT tools are being used by individuals within the other agencies, however, that use is limited to the maintenance of spreadsheets. There is no central automated repository for applications and procedural practices within agencies vary from individual to individual, leading to inconsistency of outcomes.

To modernize and automate the processes, the Sindh Government has decided to replicate the Provincial Electronic One Stop Shop (PEOSS) system, developed in Punjab. The Government has also decided that the PEOSS will be housed at the Sindh Board of Investment. A decision on the development of the portal has not yet been taken, with the two options being in house development by the Sindh Board of Investment or outsourcing. If the latter option was chosen, the Punjab Board of Information Technology should be the preferred contractor, as it has experience of developing similar solutions.

2.1.2 Proposed Process Flow

The figure below demonstrates how the provincial one stop shop portal will operate. For details of each individual organization's processes, please refer to **Annexure A**.

Provincial One Stop Shop for Business Registration

Applicant	Portal

Applicant will visit the portal website → Applicant will review the instructions

Applicant will review the necessary instructions, identify the required documents

Applicant will create a user ID → Applicant will review the instructions → Applicant will fill in the necessary information

System generated challan ← System generate challan will be issued based upon the applications

Applicant will deposit the challan

Applicant will upload the necessary supporting documents

In case the documents uploaded by the applicant are not accurate, an email will be sent to the applicant within 24 hours regarding the additional documents that are required to be submitted

Documents assessed to be correct

Certificate of Registration ← Certificate of registration will be issued to the applicant

An e-copy of the certificates of registration will be sent to the applicant. A hard copy of the certificates will also be despatched to the address provided by the applicant. A separate certificate will be issued for every type of registration selected

END

2.1.3 Functionality

The objectives of developing the PEOSS are to:

- improve the transparency of the business registration process;

- provide the ease of access for applicants, especially entrepreneurs looking to start a new business;
- reduce timelines for business registration; and
- automate the business registration data base to enhance future compliance and create a directory of all businesses registered and operating in the province.

The main features of the PEOSS will be as follows:

- it will allow applicants to register with multiple organizations simultaneously;
- applicants will not be required to visit the organizations in person for submission of documents; and
- it will provide applicants with concrete timelines for the completion of registration with various organizations.

Short term implementation goals

The figure below demonstrates how the portal is expected to interact with the relevant agencies in the short term.
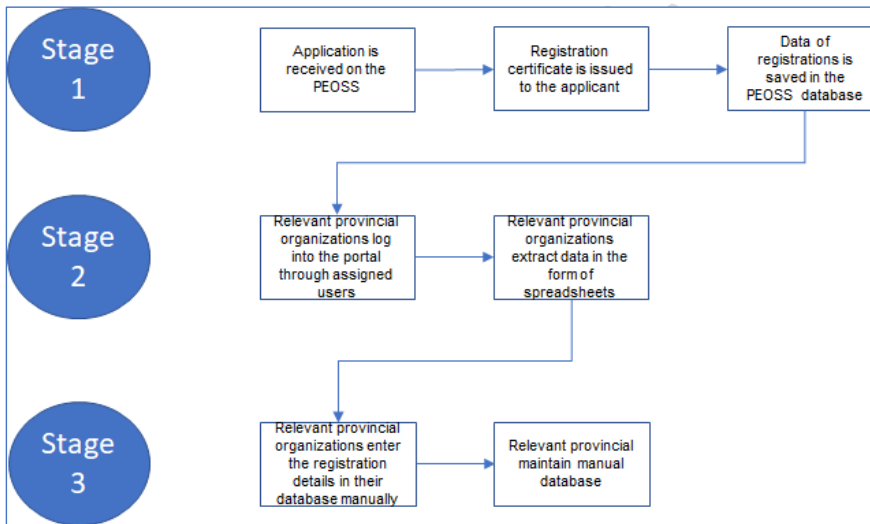
Long term implementation goals

The figure below demonstrates how the portal is expected to interact with the relevant agencies in the longer term.
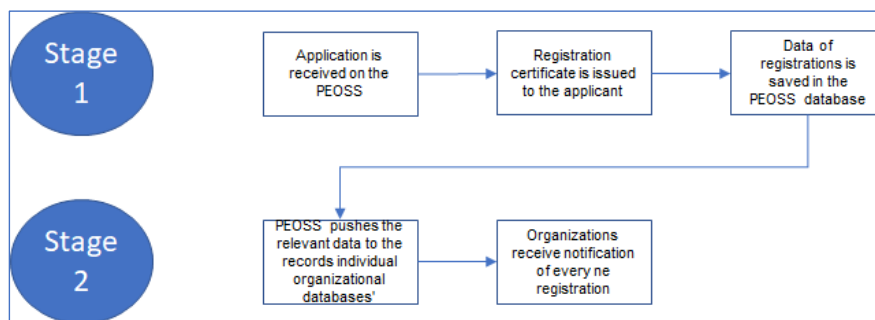

The long-term goal should be to completely automate the whole business registration process, including the creation of an interface with those parts of business registration which are the responsibility of the Federal Government. However, for the business registration process to function in this way, the following changes will need to be implemented:

- digitization of the legacy records of SESSI, DOL and the I&C Department
- creation of compatibility and effective linkages between the Sindh PEOSS and the Federal VOSS
- automation by the provincial agencies of record keeping process in a manner that will allow them to integrate with the PEOSS
- identification, by the agencies of capacity building activities to increase the skills of the current workforce in relation to ICT tools and techniques.

Implementation roadmap

To achieve both the short term and long term implementation goals, certain changes will be required in the way the registering organizations interact with their applicants. The table below highlights the changes that need to be made and the roles and responsibilities of each organization with regards to the implementation of the PEOSS.

Recommendation	Responsibility	Role
Creation of PEOSS	Sindh Board of Investment (SBI)	The first major challenge faced will be to decide on whether the portal is to be developed in house or whether the creation and hosting of the PEOSS is to be outsourced. The following factors need to be considered when making this decision: *In house development and hosting* (Please refer Section 3.1.2 of this report for further details) • Identification of a suitable space for housing of data centre • Hiring of staff for the maintenance of Data Centre • Development of layout and design of PEOSS Obtaining approval of all the involved agencies *Outsourcing of development and hosting of PEOSS* (Please refer Section 3.1.2 of this report for further details)

Recommendation	Responsibility	Role
		• Punjab Information Technology Board has already made great strides on developing a similar PEOSS and getting the counterpart agencies in Punjab on board. The portal developed in Punjab has the potential to be replicated in Sindh. To do this, a MoU between the SBI and PITB would need to be signed, which will contain the details of how the development of the PEOSS will be undertaken and the related costs that will be incurred.
Digitization of legacy records	Department of Industries (DOI), Directorate of Labour (DoL), Sindh Employees Social Security Organization (SESSI) & Excise and Taxation Department (E&T)	Currently, except for E&T, all the other agencies involved with business registration are maintaining manual records. The legacy files, as well as current records, of registration are stored in store rooms housed at the local offices. For the long-term scalability of the PEOSS to be successful, the legacy records of these organizations need to be digitized. The following actions are required for the digitization of legacy records: • creation of a project plan for digitization; • identification of contractor with the capability of archiving and digitizing the legacy record; and • creation of a software system to provide archival and search facilities for the digitized records. This system also needs to be accessible by the data processing applications.
Creation of individual automation capacity	Department of Industries (DOI), Directorate of Labour (DoL), Sindh Employees Social Security Organization (SESSI) & Excise and Taxation Department (E&T)	As mentioned above, automation within the provincial regulators is scarce. To achieve the long-term goals of complete automation of the registration process, each individual provincial regulator will need to automate their registration processes. This automation should consider the need for seamless integration with the PEOSS system. The following steps will be required: • identification of a hosting environment; • specification of the software required to encompass all the registration characteristics as well as the regulatory requirements of the provincial regulator • hiring of vendor with the capability of developing the necessary software • recruitment of staff that can oversee the development of the software; these staff should also be able to maintain the software. ▪
Capacity building of staff	Department of Industries (DOI), Directorate of Labour (DoL), Sindh Employees Social Security Organization (SESSI) & Excise	Currently, most of the staff working for the provincial regulators do not use ICT tools, are not trained for modernized processes and do not possess the capacity to work in a fully automated environment. To successfully modernize, the provincial organizations need to provide capacity building training to the staff to ensure that they can understand and take full advantage

Recommendation	Responsibility	Role
	and Taxation Department (E&T)	of the features offered by the software. It is also recommended that general IT based training be delivered to the staff to make them familiar with various office softwares such as MS Word, Excel and PowerPoint.
Waiver of registration cost	Department of Industries (DOI), Directorate of Labour (DoL), Sindh Employees Social Security Organization (SESSI) & Excise and Taxation Department (E&T)	The cost associated with registrations is minimal and does not account for significant revenues for any of the provincial regulators. In this scenario, a fee waiver would result in enhanced effectiveness of the business registration process as the application will not be required to print a challan, deposit in in a bank and then re-submit the paid challan. A fee waiver will also portray a more positive image of the Government of Sindh and help improve investor attractiveness overall as it will result in simplification of the registration process. In case the government decides not to go ahead with the recommended fee waiver, then it is recommended that automatic fee calculator be placed on the website and that calculator be linked to the challan issuance process. This is to ensure that correct fees are deposited and that the applicant does not have to deposit the challan multiple times, because incorrect calculation of fees.

Comment [AP1]: I do not think that this should be in this report: whereas all the other recommendations relate to bringing about the creation of the PEOSS, this is unrelated and is simply a suggested reform. It's not that I disagree with the idea, just that it seems out of place in this report.

2.2 Construction Permit Automation

2.2.1 Introduction

The authority for issuance of construction permits in Karachi is the Sindh Building Control Authority (SBCA). Construction in Karachi is regulated primarily by the Karachi Building and Town Planning Regulations 2002, which has been amended from time to time. The regulations cover all facets of the construction permit process, including risk based categories, silent approvals (pre-approval conditions), safety regulations and zoning regulations, as well as the licensing of building professionals.

The SBCA keeps on its premises a comprehensive manual archive of all paper based construction permit dossiers issued to date. Although an archiving process exists and the dossiers may be retrieved by record keepers whenever necessary, the limited life of paper has already rendered some of the dossiers useless. Thus, after an application is received, it becomes difficult and cumbersome to track the application status using the current manual archival process.

To overcome these shortcomings, the SBCA plans to establish a One Window Cell (OWC) facility at its premises to facilitate its regulatory responsibilities. In addition, it also plans to create end to end automation of the construction permit issuance process. This will mean that, from the time of receipt of an application to the time of the granting of construction permit, the whole process will be automated, with facilities like application tracking also being offered to applicants.

2.2.2 Proposed Process Flow

The figure below demonstrates how the OWC will operate. For details of each individual organizations processes please refer to **Annexure B**.

Operations at OWC

Applicant	Pre-Screening Counter 1	Pre-Screening Counter 2	Bank Counter	OWC Counter

Applicant obtains forms from SBCA website

Forms and relevant documents are checked for completeness

Initial scrutiny of drawings is performed

Fee is deposited at the bank counter placed at the OWC facilty

Completed file along with paid challan is submitted at OWC counter

YES

Forms are filled and requisite documents are attached

NO

Forms and Documents Complete

Initial Drawings are compliant?

Documents are scanned and application number is provided

NO

YES

Bank challan form is prepared

Application Number

The applicant is provided with a document containing the application number, and the date on which they can receive the construction permit.

END

2.2.3 Functionality

The steps that will be followed at the OWC for the acceptance and processing of applications are as follows:

- The applicant will download the application forms (available on the SBCA website).

- Detailed descriptions of the documents to be attached to each of the applications for the different types of construction permits will be provided on the website.

- The applicant will gather all the necessary documentation and attach that material to the relevant application form.

- There will be 2 pre-screening counters and 5 application processing counters at the OWC facility. The first pre-screening counter will be manned by an assistant, who will be responsible for ensuring that all the documents required for the specific type of construction permit are attached with the application form. This assistant will also have access to the Sindh Board of Revenue property registration database. By accessing this database, the assistant will verify whether the name provided as the owner of the property for which the construction permit is being sought is accurate.

- The second pre-screening counter will be manned by a 2-man team, an assistant and a Deputy Director, with the latter officer able to perform the initial scrutiny of design drawings. This will not be a detailed examination of the drawings, just an initial pre-screening to ensure that there are no glaring mistakes and all the most important and basic regulations are being followed. Once the deputy director is satisfied, the assistant will prepare a system generated bank challan.

- The applicant will take the challan and present it to the bank counter placed at the OWC facility, making the necessary payments at that counter.

- Once the payment has been made, the applicant will proceed to the OWC application processing counter. The application, along with the required accompanying documents and the paid bank challan will be presented to the assistant at the OWC.

- The assistant at the OWC counter will enter the application details, as well as scans of the accompanying documents, in the construction permit approval system. The system will generate an automated application receipt, which will also contain the date on which the applicant can receive his approved construction permit from the OWC facility.

Short term implementation actions

In the short term, to facilitate the automation of the construction permit issuance process, the following steps should be taken:

- Develop the OWC facility at SBCA premises with the facility located to provide easy access to the public. The facility should have sufficient space to house 10 counters – 9 of these counters will deal with public facilitation and 1 counter will be placed to deal with public complaints.

- a supervisor for the OWC should be assigned, with that officer's role including that of trouble shooter. Any complaints that applicants or the public have should come directly to that person who should have the necessary authority to resolve the matters that arise out of the operations of the OWC.

- one or more sign boards should be prominently displayed at the SBCA premises to guide those wishing to visit the OWC facility to its location.

- as an interim measure (possibly with minor upgrades and adjustments), SBCA should use the current software used by its computer section to record the file details as an initial construction permit tracking solution, recording application details.

- legacy records contained in the SBCA store rooms should be digitized, having in mind that SBCA will be the central repository of a future fully automated system.

- SBCA should enter an agreement with the Sindh Board of Revenue regarding access rights to the software application that the Board uses to manage property registration. Such an

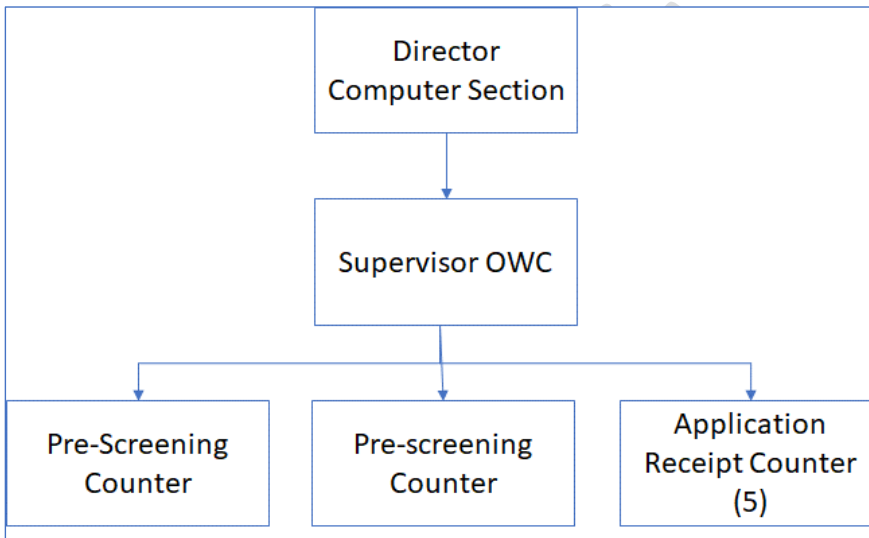arrangement will result in cost and time savings and provide additional services that will benefit applicants.

Long term implementation actions

The following reforms should be undertaken by the SBCA with regards to its long-term endeavours:

- SBCA should develop construction permit management software. This software should allow the SBCA to enter the complete details of any construction permit application received, as well as grant all the necessary approvals through the system.

- the legacy records that were digitized in the initial phase of the reforms should become a repository which is used by the digital system described above; this will ensure that the SBCA database is comprehensive, complete and secure.

Implementation Guidelines

The following organogram demonstrates how the OWC facility at SBCA will be set up, while the table immediately below it summarises and explains the implementation steps required:


Recommendation	Implementation guidelines
Establish an OWC facility at SBCA premises	Establishing of a OWC facility will greatly affect the speed with which construction permits are processed. To establish an OWC facility at SBCA, the following steps need to be followed: • designation of a spacious area for the establishment of OWC counters; this area should have enough space to handle the large number of persons that visit the SBCA offices daily for submission of construction permit applications, as well as allowing for adequately sized booths to be set up for the receipt of construction permit applications (please refer to section 3.2.2 of this report for further details) • hiring of an architect to design the OWC facility in a manner that will ensure maximum operational effectiveness whilst at the same time presenting a comfortable ambiance • repair and maintenance of current SBCA premises so that

Recommendation	Implementation guidelines
	access to the OWC facility is simple and unimpeded • placement of signboards at prominent locations at the SBCA premises to guide the public to the location of the OWC facility.
Digitization of legacy record of SBCA	Currently, the legacy archive at SBCA is largely paper based and manually operated. The computer section at SBCA enters the details of the construction permit application into a software program, however, the supporting documents are not scanned and saved into the same software. To automate the construction permit application and approval process completely, it is essential that the legacy construction permits archive be digitized. (Please refer to Section 3.2.2 of this report for the details of the digitization process.)
Development of construction permit tracking and approval software	The development and implementation of any software is a time-consuming process; this applies even more so for software that must reflect the intricacies of the construction permit issuance process. To improve the efficiency of the development process, the overall implementation has been broken down into two steps – short term implementation actions and long term implementation actions. Please refer to Section 3.2.2 for short term implementation guidelines and Section 3.2.3 for long term implementation guidelines.
Review of prevailing laws and procedures	For the system to be effective and business-friendly, discretionary approvals need to be eliminated. Thus, regulations and procedures should be rationalized and streamlined. A detailed review of these issues and several remediation recommendations are presented in Section 4 of this report.
Capacity building of staff	Currently the only component of a regulatory agency that is proficient in the use of information technology is the computer section of the SBCA. With the long-term goal of an automated system for construction permit issuance being adopted, every individual within the approval chain and hierarchy will need to become efficient in the use of ICT. To facilitate this transition, the following steps need to be implemented: • a visit should be organized through which SBCA officials are provided a chance to observe an OWC facility in action. (Such a facility is up and running smoothly at the premises of the Lahore Development Authority.) This will give the officials a chance to view first-hand the intricacies of the OWC cell and how construction permits are issued in an ICT enabled environment • once the software is implemented, the officials who will be using the software should be provided detailed training on how the software functions and what their roles will be. It will be essential that they become fully familiar with the software before it is activated. A detailed list of these requirements is presented in section 3.2.3 of this report.
Branding and public outreach enhancement	The automation and ICT enablement of SBCA will provide an excellent opportunity for rebranding of SBCA. The agency should therefore allocate funds for a public outreach and awareness campaign. Then, once the automation has been implemented, the SBCA should use them to make the public aware of the new system

Recommendation	Implementation guidelines
	and how it will function. This will assist the creation of goodwill and confidence in the user community, as well as accelerating use of the new arrangements.

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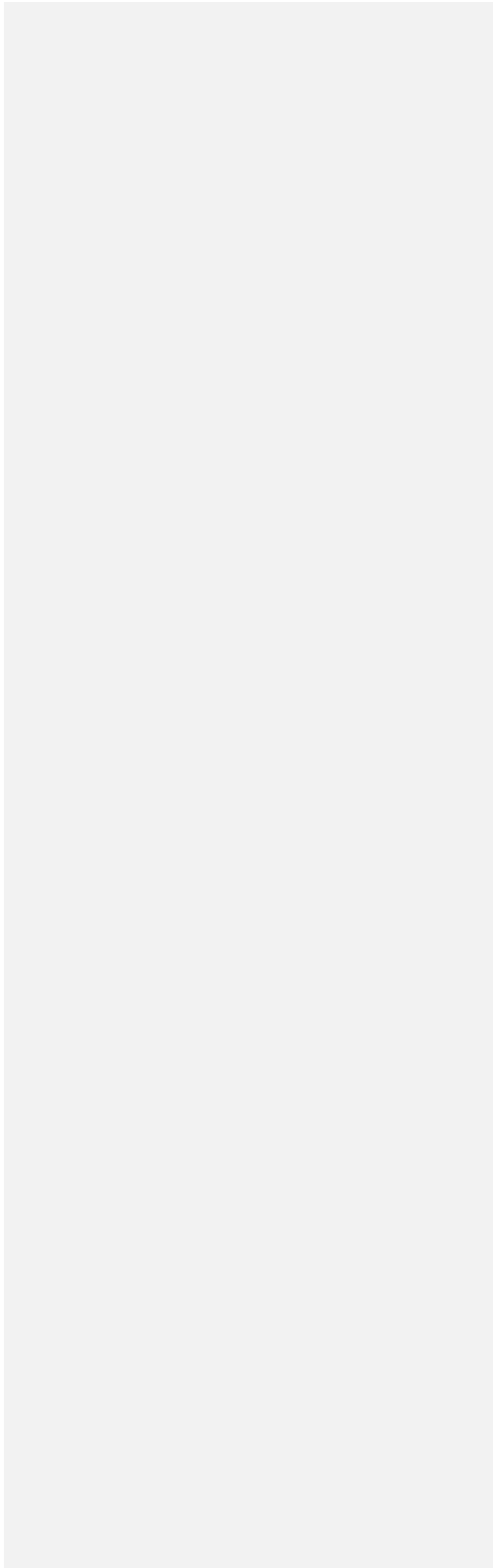
3 IT Automation

3.1 Provincial Business Registration Provincial Electronic One Stop Shop

3.1.1 Existing IT Automation at the Agencies Involved

Labour Department

The processes of business registration under Shops & Establishment Act, as well as for factories, are manually carried out. However, each of the divisional offices has at least one PC and internet connectivity. These computers are used for record keeping (manual entries in MS Excel) as well as for printing certificates (on logo paper).

SESSI

The new business registration process is completely manual at present, however, SESSI has about 150 PC computers. Their central office is networked and their zonal offices also have internet connectivity. There are no centralized applications and the PCs are mainly used for preparing reports and communication documents using MS Excel and MS Word.

E&T

ETO has developed in-house software for the registration of taxpayers for the payment of professional tax. The PCT-6 (Professional Tax Registration form) has been converted into an electronic format and users can visit the E&T web site and submit the required information on an electronic form. After verifying the email address, the system registers the applicant and assigns a registration number, along with a downloadable copy of the certificate (generated by the system). The application has been developed in the LAMP (Linux-Apache-MySQL-PHP) environment.

Industries Department

The department uses completely manual processes, with all registration records kept on paper.

Sind IT Board

The Sind IT board is normally tasked with managing the implementation of any IT projects to be implemented by the Provincial government. However, the capability to implement any long term and technically diverse project is very limited by available resources: there is only one IT support person among the eight staff in the department. There are currently four new inductions of grade 18 officers in process, however, even after this induction, the Board will still lack the capacity for hands-on IT project implementation.

3.1.2 Proposed Application Design

3.1.2.1 Software Requirements

Punjab IT Board has developed PEOSS software in consultation of PESSI, E&T, the Labour Department and the Industries Department of Punjab. The software allows for online registration of new companies with all the relevant provincial authorities (as mentioned above) via a centralized portal.

When the applicant creates a login account at this portal he/she provides all the relevant information about the business. This information is then forwarded to all the relevant agencies for registration. At present, access is given to each agency's offices in Lahore. As part of the arrangement, the agencies have agreed to provide a Project Coordinator and a Data Entry Operator. The software is currently being tested and is in a pre-release phase for relevant agencies in Punjab province.

PITB has agreed to provide this software free of cost to the Sind Government, however, implementation expenses, which will consist of the cost of travel and accommodation, would need to be provided.

3.1.2.2 Hardware Requirements

Recommended Option

In addition to the Software Requirements specified in Section 2.1 above, it is recommended that a suitable provider should be identified to host the One Stop Portal. A modern hosting facility should provide the following characteristics:

- security;
- capacity to host the size and complexity of the application;
- implementation cost difference;
- reasonable management and maintenance costs; and
- time to implement

PITB has offered to host the application within their datacenter for an estimated cost of Rs. 25,000/- per month, with an additional cost related to internet bandwidth (which will be same if hosted in-house or with a service provider).

2nd Option

A second option is the existing datacenter space of the BoR which has some extra rack space in their certified Tier III datacenter in Karachi. Only server hardware would need to be procured to host the PEOSS and the PITB application can be hosted on this hardware. Bandwidth cost will be additional (as mentioned above).

Hardware requirements

- Application Server

- Web Server

- Database Server

- Storage Area Network (SAN) – The existing storage of BoR can be used, however the exact specifics of required storage can be assessed by PITB.

Note: *All three servers can run on one or two Physical servers using Virtual Machine Software. However, the Software Developer will specify the final requirements of the servers.*

Middleware

As Recommended by the Software Developer

Networking Equipment

- Router

- Firewall with IDS

- Core Switch

HR Requirements

Resource	No of Required Resources
Project Manager	1
Data Centre Manager	1
Network Administrator	1
Systems Administrator	1
Database Administrator	1
Data Centre operators	6

3.1.3 Additional recommended actions

- Appointment of a full-time Project Manger
- Coordination among agencies
- Acceptance of all agencies to use the application generated Universal Registration Number in parallel to their own registration numbers
- Assignment of a project coordinator and a data entry officer at each site
- Scanned copy of bank challan will need to be acceptable by all agencies

Comment [NFDM6]: How about electronic payment ?

3.2   Construction Permits

3.2.1   Existing IT Capacity of SBCA

The IT department at SBCA has only a small number (3-4) working computers, with all of them more than 5 years old. Only a few of the officers outside the IT department have PCs at their desks and there is no working server or networking within or outside the IT department.

However, SBCA has developed an application (in Visual Basic) to track the in & out status of an application. The key data from the application is entered in the software program along with its submission date. Upon disposal of the application, the disposal date is entered in the application as well. The application does not track the workflow of the application processing, therefore there is no way to track on which desk the application is at a certain point in time.

3.2.2   Recommended Sort Term Solution

The IT enablement and solution implementation at SBCA can be separated into short term and long term projects. The short-term solution can be achieved in 6-9 months, requiring a smaller number of organizational changes.

It is important to note that a full-time Project Manager would need to be engaged at the start of the project (highlighted in Section 0, HR Requirements, below) to prepare the project RFPs and carry out the tendering and evaluation of the submissions.

The initiatives listed below are proposed for implementation in the short term.

File Tracking System

SBCA has already worked on an application for data entry and tracking of construction permit applications and files (described in Section 3.2.1 above). Screenshots of this application are attached at Annex – A.

It is proposed that the existing file tracking software should be used at the OWC counters to track the data entry of key application fields and file scanned copies of new application documents.

One Window Cell (OWC) IT Preparation

The One Window Cell will seat 9 persons (including one person on the bank counter). Along with the internal layout design and furniture requirements, there will be IT infrastructure requirements for this facility.

Items	Quantity
Desktop PCs	8
Printers	8
Scanners	8
Queue Management System	1
Networking & Electrification of workstations	8

Note: *Specifications of Desktop PCs, Printers and Scanners given in Annex – B.*

Computer Room Preparation

Along with the One Window Cell operations space, SBCA has allocated a room (dimensions 6 feet x 12 feet) to be used as a computer room. This computer room will be used for hosting of computing, storage and networking equipment that will be used in the present and future application of the SBCA.

The computer room should have the following characteristics;

Infrastructure Requirements

Site Preparation (including interior work and electric / network cabling)
Precision Cooling
Racking Equipment
Smoke Detection & Suppression System
Security & Access Control system`
Uninterrupted Power Supply

Hardware requirements

Application Server
Web Server
Database Server
Storage Area Network (SAN)

Note: *All three servers can run on one or two Physical servers using Virtual Machine Software. However, the Software Developer will specify the final requirements of the servers.*

Middleware

As recommended by the Software Developer

Networking Equipment

Router
Firewall with IDS
Core Switch

HR Requirements

Several IT related staff will be required to support the OWC.

Resource	No of Required Resources
Project Manager	1
Network Administrator	1
Systems Administrator	1
Database Administrator	1

Document Scanning, Archival and Indexing

SBCA has an archival of paper dossiers. Due to humidity and environmental conditions, these documents are deteriorating over time and the agency has no online tracking and search capabilities to access them. It is recommended that this paper document store should be digitally archived and indexed for search capabilities via an online document management system. The estimated total number of files is 700,000 comprising an estimated 7,000,000 pages (single and double sided) to be digitized.

Scope of Work

For the digitization of existing files, a specialist company will need to be engaged, which has expertise not only in document digitization but also in software development. The following scope of work highlights the items that need to be included in the RFP (Request for Proposal) for hiring such a firm.

- Rapid review of the type and condition of the dossiers and documents to be digitized, along with the catalogues and lists available within the SBCA (to be used for metadata) to gain a better understanding of the scope of work.

- Preparation of a detailed action plan for digitization of each category of data, along with a detailed workflow for each type and category of records – which may also include very old and tattered and brittle records as these documents may be typed or handwritten on single or double side.

- Preparation of a detailed action plan for digitization of records.

- Provision and implementation of a DMS (Document Management System) Server for data storage at SBCA.

- Set up a fully equipped digitization facility at SBCA for carrying out the scanning and indexing work for different kinds of records.

- Batch Preparation and processing.

- Scanning, digitization and archival of the digitized records including metadata entry.

- Quality checks and validation of digitized material and checking of catalogue data / index in coordination with the staff of the SBCA.

- Refiling and handing back the records to the SBCA.

- Populating the digitized records in the DMS.

- Thorough testing of the DMS solution and application.

- Complete implementation of DMS on Internet / Intranet.

- Development of Technical and User manuals for accessing and manipulating the database and extensive training of the SBCA staff in these actions.

- Provision of post implementation software and hardware support for a period of 2 years or for a longer period as may be decided by the SBCA.

- Provision of an undertaking that integrity, secrecy and security of data shall be maintained. Service Provider must arrange at his own cost all the necessary hardware (in addition to the hardware to be procured by the SBCA), i.e., LAN establishment, UPS etc. to complete the digitization work.

Document Management System (DMS)

In order to manage a large repository of scanned documents, a document management system should be implemented as part of the digitization process. It is proposed that a single firm should be hired to not only scan the existing files but also to attach metadata information in a Document Management System for easy search and retrieval of historical files.

The proposed DMS should have the following capabilities;

General Requirements

- It should be Commercial Off the Shelf (COTS) solution to reduce overall system development and maintenance time and costs.

- The DMS should be an integrated, web technology based solution that allows the SBCA to integrate all types of records and project files and enable the end user to search quickly and comprehensively.

- Inter-operability: the systems must integrate seamlessly with the provided Back Scanning software and should allow interface with other open-standard systems. The repository

database should be designed having in mind its use as a central repository for an online application.

- Scalability should be high: the systems should be designed for 24x7 operations.

- Version Control and management: the proposed Document Management Systems should have versioning features to track and document revisions made.

- The proposed DMS should have the capability to integrate with renowned third party Databases / ERP / Workflow management systems from SAP, Oracle, Microsoft etc. via Connectors or APIs. These APIs and connectors should be available free of cost or included in the provided DMS.

- The proposed DMS should have its own image viewer for different image file formats to ensure smooth operation of the integrated systems.

- Preferable support for Web Desktop for browser based access on Mac/Windows clients.

- LDAP / Active directory authentication support.

Search Capabilities

- The DMS shall provide extensive features for searching of the database, such as text based searching, context based searching, keywords based searching, index based searching etc.

- An ability, upon completion of a search, to immediately display all selected images and support quick navigation through documents.

- An ability to provide for save and publish common searches for quick access.

- An ability to provide for view search values for custom fields before searching.

- An ability to provide for rapid search and retrieval on multiple very large document repositories.

Security Requirements

The DMS should support:

- definition of Users, Groups and Roles relation in the system;

- access permissions on Folders, documents and object level

- multiple levels of access rights (Delete/ Edit/ View/ Print/ Copy or Download)

- secure login id and passwords for each user, with passwords stored in encrypted format in database

- disaster recovery by replicating the data.

- extensive audit trails at document, folder and for highest levels for each action done by user with user name, date and time

User Management Requirements

- User management (on Server for centralized application) should be available to Administrator(s).

- There should be comprehensive User management system. The Organization should be able to create different levels of users with different powers. There should be templates for a group of users. The system should facilitate the creation of different levels of users and the assigning of different levels of rights.

- There should be provision for disabling a user temporarily or on permanent basis.

- The system should have online help, FAQ, knowledge base feature for all types of users, depending upon their level. Suitable training to users should be provided and details in this regard should be furnished in the bid.

Reports and Audit Trails Requirements

The DMS should:

- support extensive reports and audit trails

- support extensive audit trails at user, folder and cabinet levels

- provide the facility to generate audit trails on separate actions and between specific date/times.

3.2.3 Long Term Solution

File Management & Approval System (Workflow Management System)

Subsequently to the digitization of the physical archives, a comprehensive workflow management application must be implemented to modernize and automate SBCA process and approval flow. This software should allow for streamlining of existing processes, integration of content, online publication of performance metrics, cloud based access and a dashboard highlighting SLAs.

It is recommended that a local software service provider to be hired to carry out an assessment of the processes, as well as the application requirements per best practices.

Once implemented, the system should allow appropriate personnel to define the processes to be managed by the workflow system, coordinate the execution of the defined processes to get work done, ensure work is monitored and progressed, allow the visualization of the defined processes and allow the monitoring of the current state and the dynamics of the system.

Scope of Work

To streamline the project implementation, a dedicated IT Project Manager as well as a Process Manager should be hired. Once hired, the Project and Process Managers should work with the Software Implementer, the SBCA IT department and the executive-level reengineering steering committee to implement the workflow management system. The exact implementation guidelines will vary, based upon the proposed software solution and processes, however, the following list of steps can guide the implementation team on the appropriate course of action.

Phase I: Preparing for Workflow Innovation

- Establish Change Leadership Roles

  o This includes identifying key leadership roles to support and assist the change team. These roles include a reengineering leader, an executive-level reengineering steering committee, and a re-engineering project manager.

- Introduce Automated Workflow Management Technology

  o A workflow management tool should be procured and installed to automate and improve business practices within the organization. The IT department will also identify, obtain and install the supporting infrastructure required to provide organization-wide connectivity.

- Analyse the Project Environment

  o The project team must analyse and understand the conditions under which they will operate. This would include inventorying organizational resources, determining project scope and time frame etc.

- Implement a Change Management Program

  o To control employee resistance throughout the course of the workflow reengineering project, SBCA must implement a proactive change management approach.

Phase II: Automating Existing Workflow

- Catalogue Business Products

- Identify Business Processes

- o At this stage, the business cycle (the application approval process) will be decomposed into its component processes by identifying how each business cycle product is created.

- Select a Process for Implementation and Improvement

  - o Once all the processes of a business cycle are identified and recorded, the team should select a series of business processes for implementation of reform. The Executive Steering committee must identify the owner of the selected process.

- Construct a Work Breakdown Structure

  - o At this stage, each of the process is broken into its component sub-processes, and the sub-processes are broken into their fundamental tasks which are the actual work steps of the process.

- Define Task Components

  - o A task contains six components: work objects, roles, rules, resources, time, and routing. All these components will be defined at this stage. The change team will collect the required workflow data for each task in the process.

- Specify Performance Measures

  - o Prior to establishing an automated workflow, the team will also specify performance indicators that will be recorded by the workflow tool.

- Complete and Verify the Workflow Model

  - o At this stage the team will construct the workflow model of the process being modelled. The flow and performance of work through every path of the process will be traced to ensure that the model is validated.

- Install and Test Required Infrastructure

  - o With the help of the IT department, the change team will examine the network infrastructure and determine if any additional hardware or software is required to connect all the workflow participants. The team should also verify that all the components required to automate the tasks of the process are installed and operational.

- Implement and Monitor Automated Workflow

  - o After the workflow system is in place and prior to beginning the collection of performance data, employees should be trained and given an opportunity to learn and get comfortable with the new workflow system. Once they are adequately trained, the automated workflow system is implemented and allowed to operate.

Required Hardware for Workflow Management System

Note: *The numbers and specifications given below are based on estimates. The final specifications, quantities and prices will be available after hiring of the project team and carrying out final assessment by the hired IT Project Manager and the Process Manager.*

The hardware specification is based on an assumption of the likely number of users of the system. The following table provides an estimate of the various end users of the Workflow Management System within the Karachi HQ of SBCA.

Post	No. of Users
Director General	1

Directors	21
Deputy Directors	34
Assistant Directors	170
TOTAL	**226**

Required End User Hardware

Items	Quantity
Desktop PCs	226
Printers	22
Scanners	21
Networking & Electrification of workstations	226

Specifications of end user hardware is given at Annex – B.

Server Room Hardware requirements

It is assumed that a Server room is already commissioned at SBCA under the Short-Term solution.

Application Server
Web Server
Database Server
Storage Area Network (SAN) ***Optional**

Note: *All three servers can run on one or two Physical servers using Virtual Machine Software. However, the Software Developer will specify the final requirements of the servers. The existing SAN can be used for storage purposes by increasing its storage capacity.*

Middleware

As recommended by the Software Developer