Chapter 4

Government Process Re-engineering

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While the previous chapters highlighted the potential of e-governance to increase the efficiency of government operations, this will not necessarily deliver the best results or increase citizen-centricity until processes are reconfigured and redesigned. Therefore, the process of government process re-engineering is an important element of successful e-governance.

4.1 What is GPR?

There are many schools of thought on how to carry out public sector transformation. Business process re-engineering (BPR), redefined as government process re-engineering (GPR), involves a quantum leap in organisational transformation rather than incremental improvements.

As defined by Dr Michael Hammer, one of the founders of the management theory of BPR,

> Business Process Re-engineering is the *fundamental reconsideration* and *radical redesign* of organisational processes, in order to achieve *dramatic improvements* of current performance in *cost, speed, and quality of service* (Hammer 1990).

GPR is the application of re-engineering within a government context; however, the underlying principles of BPR are universal:

- **Fundamental reconsideration** – This goes back to the raison d'être of the organisation and asks questions such as: Should government be operating in this industry? Could this function be conducted better outside government? Is this a core business for government?

- **Radical redesign** – 'Thinking outside the box' becomes part of the critical thinking process and the focus is on the customer. There are several techniques that could be applied to conduct a radical redesign and these will be covered in more detail later in the chapter.

- **Dramatic improvements** – Quantum leaps in improvement in cost, time and speed are associated with GPR initiatives. In some instances, breakthrough improvements are established initially and incremental changes are applied on an ongoing basis to further refine redesigned processes.

4.2 Why is GPR necessary?

For GPR to be successful, the organisation must have a compelling reason to change.

Governments have been forced to change due to the global financial crisis. A significant source of public revenues in developing countries is foreign remittances, and as a result of the crisis remittances have reduced significantly due to higher levels of unemployment in countries that employ immigrants. The growing and unsustainable budget deficit – further exacerbated by increased levels of spending due to a rise in demand for social programmes – is pressuring government to become more efficient and reduce costs of operation, while improving customer service.

E-government is a growing priority within government, where public services are being demanded by citizens and the private sector on a '24/7/365' basis. E-government also increases governance and transparency, transforming government to be more responsive to the needs of citizens and more transparent to assess the performance of government. At the same time, e-government services reduce the costs of transacting with government. However, e-government cannot operate within current bureaucratic and 'silo' organisations, since it requires full and seamless integration and co-ordination of ministries to process digital transactions that require the attention of more than one department.

Many small island states depend on foreign direct investment as a major source of revenues, and they are being pressured to provide e-government services to reduce red tape and decrease the cost of doing business – for example, to retain and attract offshore banking companies. This industry has competition from around the globe and, without such organisational improvements, businesses will relocate to countries that are more business-friendly. Modern infrastructure, the internet, social networks and mobile telephones are being utilised to enhance the investment climate, attracting investors and making government more efficient and competitive.

This provides a sample of the business rationale for undertaking a dramatic transformation of government – it is not optional, but mandatory.

4.3 GPR methodology

The framework in Figure 4.1 provides an overview of the re-engineering process, which will be discussed in more detail later on. The framework is based on the author's experience of re-engineering a variety of government departments in the Caribbean and North America.

4.3.1 Impetus for change

Since GPR involves radical change, it is imperative to define a persuasive reason for undertaking such an initiative. The reason provides the basis for change management

Figure 4.1 Process re-engineering framework
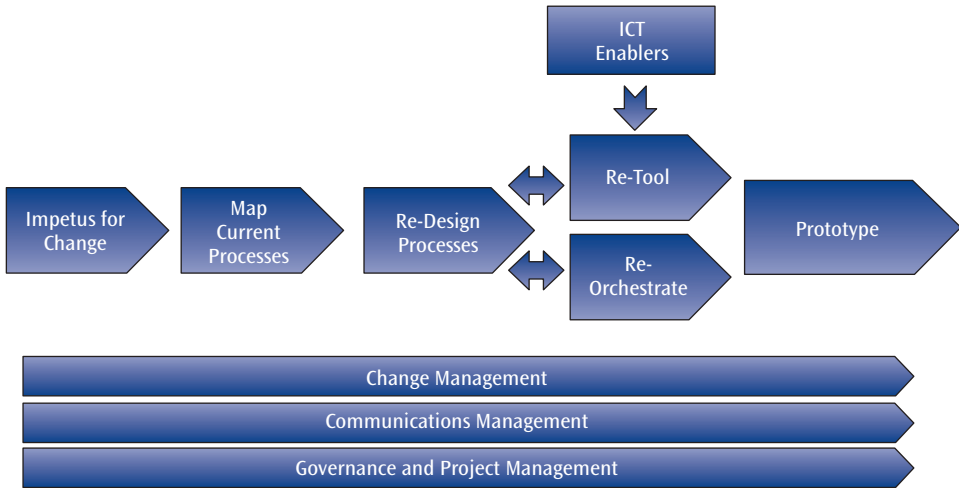
activities, where staff must be sold on the new way of doing business and stakeholders need to understand the underlying rationale for change.

In addition to a compelling reason, a strong and influential sponsor is required to lead the GPR initiative. Although GPR may be seen in some circles as a technology project, it is truly a government transformation process that must be led and driven by a non-ICT ministry or sponsor.

4.3.2 Mapping current processes

Conducting an exercise to understand and map the current situation helps to identify where the inefficiencies and bottlenecks are occurring, and the reasons behind these problems. It also provides a baseline to measure the level of improvements that have occurred at the end of the GPR exercise, and whether the GPR targets have been achieved. The key outputs from this phase are: a map of the current processes; metrics for costs, time and quality; and rules that govern the processing of the trigger, or the event that initiates the process.

Although there are a variety of techniques to map processes, a useful one is swim lanes, a tool that identifies activities conducted in each department. This technique provides a visual that shows how the trigger is processed by different departments, how hand-offs (persons involved in the process) occur and the time the trigger spends in each department. Figure 4.2 provides an example of this.

Figure 4.2 An example of mapping current processes: tax department returns processing
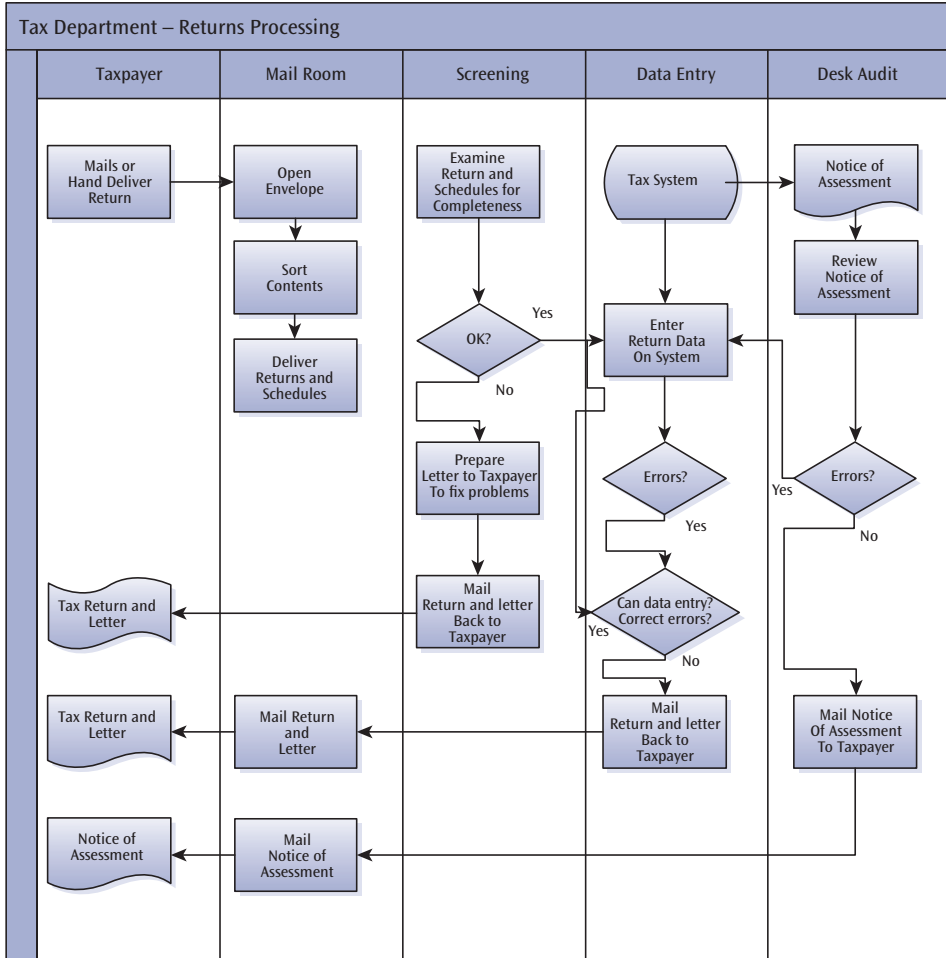
4.3.3 Re-designing processes

The basic premise for the redesign phase is to develop processes that are customer focused, efficient and reduce the number of hand-offs. The outputs from this phase are: redesign options, evaluation of options through selection criteria and a map of the new redesigned processes that will meet the targets that have been set for the GPR initiative. It is important to understand that this phase drives the technological solution that will meet the needs of the redesigned processes. In addition, redesigned processes shape the organisation design and identify legislative changes that are required to support the new processes.

There are a variety of techniques that could be applied to redesign processes:

- **Utopia pull** – This involves starting with a blank sheet of paper to design the optimal process, without taking into consideration any constraints. Then constraints are applied that cannot be re-engineered away – for instance, cultural, financial or capacity constraints. The result is a process has been designed that provides an optimal solution to deal with efficiencies, and meets the targets that have been set for the project.

- **Enlightenment**– This avoids the 'was not invented here' syndrome. Instead of starting from scratch, borrow what other countries have successfully implemented, learning from their mistakes and adopting best practices. This will reduce costs and timelines for the project, as processes will be mature and bugs would have been resolved. For example, the requirements and data architecture for tax systems are universal. All tax jurisdictions require a tax roll, returns processing, payment processing, a risk management system, audit, appeals and compliance. There is no need to reinvent the wheel.

- **Rule-busting** – This is probably one of the most common redesigning techniques. Many processes are governed by rules that have been around for many years and are part of an organisation's policy or procedures, but have outlived their usefulness. If a rule is causing bottlenecks and undue delays in processing, it should be reviewed and where necessary modified or eliminated. For example, an old rule that all corporate registration applications have to be completed in triplicate with hard copies to ensure that backup copies are available in the event that the original is lost, is not necessary in the twenty-first century with the advent of technology. This rule could be eliminated.

- **Reduce hand-offs** – Every time there is a hand-off, a delay occurs since it sits in an inbox until the employee has time to address the trigger. In addition, the further away processing occurs from the customer, the greater the chances are for inaccurate information to be captured, more rejects to occur and processing delays to increase. Information should be captured at source and employees empowered to make decisions.

- **Parallel processing** – Many triggers are processed sequentially, as each trigger moves from one department to another. If the trigger was processed by a team, then the team could collaborate and work in parallel to process the transaction. This will reduce the turnaround time to process the transaction, will reduce costs and improve customer service.

- **Before or after** – Many governments insist on processing the whole trigger before a confirmation is provided to the customer. The key idea with this option is to focus on the customer and find ways to increase the speed to complete the transaction. In some instances where the risk is not significant, this may be appropriate – for instance, where the transaction is partially processed; a

confirmation is issued; and then later the transaction process can be completed, as in the example in Box 4.1.

Box 4.1 Before and after

A government requires the applicant for a corporate registration to file a 10-page application together with 15 pages of supporting documentation. Under the old system, it takes about four months to process the application and issue the registration number. In the meantime, the applicant cannot open a bank account and start up his or her business.

The new process reduces the number of pages on the application form to five, while the supporting documentation is reduced to nine pages. If the application is completed correctly, then a preliminary corporate registration number is issued so that the registrant could go about opening his/her business. The supporting documentation would be reviewed later on a random basis and also according to risk characteristics. If there are no problems, then the registrant is notified that the preliminary number is now permanent. If problems occur, then the number is revoked and, depending on the severity of the problem, a significant penalty could be levied. The end result is that the business operator could start business within two days instead of four months. Further improvements could be obtained by e-filing the registration form.

4.3.4 Evaluating and selecting suitable projects

There are a variety of methodologies to assess suitable project options, which could be classified into two categories: *tangible benefits* and *intangible benefits*.

Tangible benefits

Net present value (NVP) is used to rank projects. It is calculated by establishing net cash flows (inflows less outflows), determining the discount rate and discounting cash flows for each year:

(*net cash flows*) / ((*1 + discount rate*)^{time})

If NVP ≤ 0 then the project would be rejected; if NVP is > 0 then the project could be invested in. The project with the highest NVP would be given the highest priority. This is exemplified in Table 4.1.

Table 4.1 Net present value calculation example

Year	Amount	Discount rate	Discount factor	Discounted net cash flows
0 – investment	($5,000,000)			
1	$1,000,000	10%	.909	$909,000
2	$2,000,000	10%	.826	$1,652,000
3	$2,000,000	10%	.751	$1,502,000
4	($1,000,000)	10%	.683	($683,000)
5	$3,000,000	10%	.621	$1,863,000
Totals				$5,243,000

Notes:
NPV = $5,243,000 – ($5,000,000) = $243,000
NPV > 0 therefore accept project

While this technique enables a robust economic evaluation of the project and is used widely in the public and private sectors, it is difficult to explain to decision-makers and it is also often difficult to estimate cash flows and the discount rate.

Payback period is technique used to rank projects based on the number of years it would take to pay back their investment. It is established through calculating the net cash flows for each year, subtracting net cash flows for each year from the investment, and then calculating the number of years or partial years it would take to pay back the investment.

The desired number of years for the project to pay back investment should first be established – typically for ICT projects this should be less than five years. If the actual payback is less than the target payback, then the project should be invested in. If the actual payback is more than the target, then the project should be rejected. The project with the lowest payback period is ranked as the highest priority. Table 4.2 shows an example of the payback period calculation.

Although this technique is simple to understand and explain, it does not take into consideration the time value of cash flows and also ignores cash flows after the payback period.

Table 4.2 Payback period calculation example

Year	Amount	Remaining balance
0 – investment	($5,000,000)	
1	$1,000,000	($4,000,000)
2	$2,000,000	($2,000,000)
3	$2,000,000	0
4	($1,000,000)	
5	$2,000,000	
Totals		

Notes: Payback period = 3 years

Intangible benefits

Where it is difficult to quantify benefits, Table 4.3 provides a fairly simple methodology to evaluate each project and select the option that best meets the needs of the customer.

Table 4.3 Project evaluation methodology

Projects	Customer benefits				Organisation benefits					Aversion factors			
	Quality	Speed	Convenience	Others	Operational savings	Productivity	Strategic advantage	Prestige	Others	Implementation cost	Difficulty	Project risk	Others
Project 1	+++	+++	++		+	++	+++	+++		---	---	---	
Project 2	--	--	---		+++	+++	---	---		-	---	--	
Project 3													

Source: National University of Singapore eGL Business Process Re-engineering workshop material 2009.

4.3.5 Re-tooling

The overall objective of re-tooling is to conduct an environmental scan to identify technology solutions that will satisfy the requirements of the redesigned processes. It should be stressed that requirements drive technology solutions, and not the other way around.

Technology is the key enabler to re-engineering initiatives, since it introduces new ways of doing business and disrupts the current way of processing triggers. The introduction of 'disruptive technologies' such as the internet, mobile devices, Web 2.0/3.0 and cloud computing has revolutionised how government organisations operate.

The **internet** is a ubiquitous tool that allows government to provide services 24/7/365 that are accessible to all. Instead of customers having to deal with arduous travel, hours of queuing, processing fees and long waits, the internet provides a vehicle where the customer can use a service at any time in the comfort of their homes – reducing the costs to the customer and significantly improving customer service. The internet also creates a facility to allow government to be more transparent through publishing public data online, therefore increasing social accountability.

The number of **mobile devices** is increasing exponentially; the International Telecommunication Union projects that by 2015 there will be enough mobile phones for each of the 7 billion citizens in the world. This phenomenon provides the opportunity for governments to 'leapfrog' the technology gap in developing countries. Simple mobile devices can be purchased for less than US$20, and this simple technology can be used to provide a wealth of services. In India, a database was created by farmers to register labourers who were interested in harvesting crops. When a farmer needs labourers, an SMS message is sent to the relevant labourers notifying them of the job and the location of the farm that requires their services. Previously, labourers had to go through a middleman and pay a commission to obtain a job from the farmer (eFarmDirect 2012).

Technological innovations complement GPR and can be employed to build high-level technology architecture in government – including application systems, data and infrastructure – as well as make government processes more open and available to citizens.

4.3.6 Re-orchestration
The key objectives in this phase are to align the organisation structure, new job descriptions, performance management systems and supporting legislation with the redesigned processes.

Re-engineering will result in changes to the way that ministries/departments are organised. The removal of 'silos' to allow teams to function will result in changes in structures from discrete functional departments into multi-faceted teams that are designed around processes – not around departments or activities.

Similarly, changes in legislation may be required to support the new processes since old rules will be eliminated to streamline antiquated processes. To ensure that the new way of doing business is institutionalised, new performance management systems are

necessary to ensure that the right incentives are incorporated into performance contracts.

The outputs of re-orchestration include a new organisational design, legislative changes, a training plan and strategy, new job descriptions, new reward structures and the requirements for factors of production.

Re-tooling and re-orchestration enables the creation of a roadmap to achieve a certain vision. This prototype of new processes includes specific, measurable, attainable, relevant and time-bound (SMART) projects and monitoring and evaluation tools for these projects, ready for implementation.

4.4 Management of GPR

GPR must be led by a strong and influential non-ICT ministry or sponsor. In addition to providing resources to the GPR team, this sponsor is required to be the executive champion who will liaise with his/her peers to obtain buy-in, deal with territorial issues, negotiate with senior executives and drive the project to completion. Without a strong sponsor the probability of success will be low, because the biggest challenge in GPR is change management.

> **E-government in Malta** was initially under the leadership of the prime minister. This was because multiple ministries were to be impacted, and therefore the initiative required a strong central leader to deal with cross-ministry issues. Once the e-government initiative was underway, then an e-Government Office was created and placed within the Ministry of ICT.

Management focus will be on being a coach rather than supervising, as teams should be self-managed and empowered to make decisions. Core management functions are to ensure that change, communication and project management functions are fully considered and to ensure that processes and methodologies for these are in place. These include change and communications strategies, a project management governance structure and organisation of project management.

4.5 Change management

E-government is not about technology, but rather about changing norms, behaviour, attitudes and culture. Getting people to shift from their 'comfort zone' to an unfamiliar place requires discipline, dedication and, above all else, commitment from all levels of management. Change management is probably the most difficult aspect of GPR.

Resistance to an implementation of an e-government strategy from within the public service is to be expected. Resistance to change – both individual and

Figure 4.3 GPR project structure
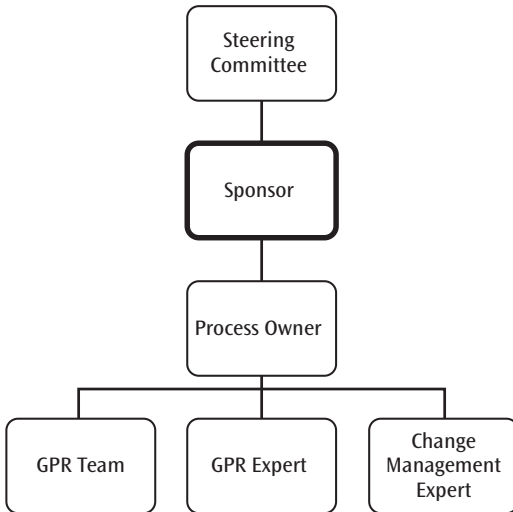
organisational – arises for a variety of reasons, including fear, scepticism, concern, inertia or for economic factors. The key is that such resistance should be anticipated strategically, planned for and subsequently managed. People need to know why change is necessary, what the benefits are and how they will be affected.

Change fails, in most instances, because the change process is not managed. There are many change management models floating around; however, there are key elements to any change process:

- **Clear vision** – the destination must be clearly defined with a road map that charts the course to be taken

- **Compelling reason** – there has to be urgency in GPR initiatives, with disastrous consequences for inaction

- **Commitment from the top** – a strong coalition with influential leaders is required to set the right example and drive change within the organisation

- **Quick wins** – identify 'low hanging fruit' and deliver these successes quickly to build momentum, credibility and demonstrate tangible progress

- **Continuous communication** – constant communication with staff and key stakeholders is necessary to obtain buy-in and address concerns

- **Institutionalise change** – to sustain change it must be inculcated into the processes of the entire organisation

Performance management schemes should ensure that the new government model is rewarded and 'no change' behaviour is questioned.

Some organisations have good intentions initially as they embark on the GPR journey; however, many have applied re-engineering in a superficial manner, because they have underestimated the level of effort required to successfully implement these radical changes and the level of resistance to change by employees and stakeholders.

To avoid this scenario, it is important that there is a compelling reason for change and a firm commitment by senior officials to support the initiative. The philosophy of 'think big, start small and scale fast' should be a central theme for re-engineering projects. A clear vision that is succinctly articulated conveys a focused sense of purpose to the organisation. Quick wins are necessary to create momentum, build credibility and demonstrate tangible progress.

4.6 Communications management

Change has two underpinning requirements: effective handling of the politics of change and careful attention to the management of change. Without the former, the change process will not survive as it will succumb to resistance; without the latter, it cannot be translated into results as successful management communication creates positive channels to support the change. At the heart of both requirements is a communications framework.

Building a robust communications network is important to deliver a consistent message, minimise the unknown or speculation, establish trust and confidence, maintain moral and motivation, share knowledge and gain feedback.

Communication needs to start from the top and should be frequent. People receive and interpret messages in different ways; therefore using multiple media ensures that messages are received. For a communications effort to be sincere and effective it requires effort, resources and tools on a sustained basis during the entire course of the implementation process.

Choosing the right communication tools and channels also depends on the status of the change process (Figure 4.4) – including newsletters and notices to build awareness, intranet and presentations to support understanding, focus groups and meetings to foster acceptance, and workshops and seminars to establish ownership and engagement.

4.7 Where GPR has brought results

4.7.1 Singapore

Singapore used GPR extensively during 2000–2006 to reinvent government and position Singapore as a global information communication hub, e-economy and e-society. During 2007, a survey was developed by Mr Albert Tan (Lecturer, Institute of Systems Science, National University of Singapore) and sent to private and public

Figure 4.4 Choosing the right communication tools and channels

Level of change (y-axis, bottom to top): Awareness; Understanding (and action); Acceptance/alignment; Ownership/engagement

Level of involvement (x-axis): Tell; Sell; Consult; Join

- Newsletters, emails, memos, letters, notices
- Booklets, plenary sessions, presentations, videos, intranets
- Focus groups, working parties, suggesstions schemes, consultative presentations
- Working sessions, 1-to-1 conversations, workshops, coaching

sector organisations. Forty-five per cent of respondents indicated that their GPR projects had achieved target benefits or exceeded them. Some examples of GPR projects are detailed below.

Box 4.2 The One-Stop Non-Stop (OSNS) Service

The aim is to bring Singapore's government services to the public at their convenience. Various government application systems are linked and deployed to minimise multiple form filling and multiple trips to different government departments. In addition, information kiosks are installed in public places – for example, in community centres, libraries, MRT (Mass Rapid Transit) stations and major bus interchanges – to enable public to access to government information easily, or for people to submit government application forms, pay government taxes, car park fees or fines, or to renew licences at places most convenient to them.

Box 4.3 Singapore's Public Services Infrastructure (PSi)

PSi is a central platform that government agencies can use to easily and efficiently build their own e-services. It offers common application services, such as payment gateways, data exchanges, authentication and security services, which help government agencies to generate their own online services, saving them the cost and time of developing or purchasing them independently.

Source: UNPAN 2003

> **Box 4.4 The Government Cloud (G-Cloud)**
>
> The central Government Cloud is the next-generation infrastructure, which will replace Singapore's current whole-of-government infrastructure (SHINE). It will provide central services, such as government web service exchange, and gateways to SingPass and e-payment services.
>
> To further maximise cost savings to government, common services such as customer relationship management and web content management will be offered on the G-Cloud. This will enable standardisation and sharing of computing resources and applications at the whole-of-government level.

4.7.2 Malta

The Government of Malta applied GPR to bring its ministries in line with the requirements to enter into the European Union. As a result of their initiatives, the 2010 *e-Government Benchmarking* Report, which measured public sector performance in the deployment of e-government, showed Malta to be the best performing country in Europe by achieving 100 per cent in five of the six core indicator measures (online sophistication, full online availability, user experience for e-services, user experience for national portals, e-procurement visibility and e-procurement availability (MITC 2010). The government has launched an e-Procurement Gateway to improve its score in the final indicator.

4.7.3 India

Government agencies in India have made efforts to re-engineer public services to make them more efficient, available and less costly for citizens to use.

> **Box 4.5   Bhoomi: management of land records in Karnataka**
>
> Bhoomi was initiated in Karnataka, India, with the objective of re-engineering an age-old process of maintenance of land records. The old, manual system of land-record management hindered collection and analysis of data. Over time, inaccuracies crept into the system through improper management and deliberate manipulation and bribery by village accountants.
>
> Twenty million land records were computerised and a network of Bhoomi record access points was set up in 177 locations, serving more than 6 million farmers. Farmers can now obtain computerised records at the click of a button or through touch-screen – and in a fraction of the previous time and cost. Apart from achieving the transparency, accountability and authenticity of data, there are other intangible benefits – such as arresting further distortion in data by creating a secure environment and creating equitable service to all on a first-come, first-served basis. See Rahman 2010.

Box 4.6   CARD: Andhra Pradesh

Similar to the Bhoomi project, the Computer-aided Administration of Registration Documentation (CARD) project was designed to make the registration of land deeds faster, more efficient, more reliable and consistent through computerisation, and to improve the citizen interface. The project was implemented in 214 locations in 15 months. It involved significant process re-engineering, involving detailed project management, capacity building (10% of total budget), outsourcing software development and changes to the Rules of Property Valuations and the Registration Act to improve transparency and efficiency. Registration can now take place in one hour instead of the previous 10 days.

Box 4.7   e-CheckPost, Gujarat

The Gujarat State Road Transport Department's computerised check post project has reduced corruption at Gujarat's borders and enhanced revenue earnings. The moment a truck enters Gujarat, its weight is recorded on a computer and all vehicle details, including the number plate, are photographed. This information is accessible at the control room in Ahmedabad, making it impossible for officials at the post to record a lower weight against a bribe.

The project was awarded gold in 2012 for the best government process re-engineering project in India. Strong political will (championed by the Government of Gujarat and the Transport Commissioner) as well as the efficient reconfiguration of the system, have been listed as key success points (UNPAN 2008).

Box 4.8 Integrated delivery of services: E-Biz India

The vision of E-Biz is to transform India's business environment. This is to be achieved by providing efficient, convenient, transparent and integrated electronic services to investors, industries and business sectors across all forms and procedures, approvals, clearances, permissions, reporting, filing, payments and compliances throughout the industry lifecycle. Central to what E-Biz looks to achieve is a radical shift in service delivery to business communities – from department-centric to customer-centric services. The initial stage of the project envisages the integrated delivery of 25 services provided by 14 central, provincial and local governments.

4.7.4 Lessons learned

There are several key lessons learned from the implementation of GPR in governments around the world. First, do not underestimate the effort required to manage and implement change initiatives. A compelling reason for change is critical in order to establish the impetus and will to undertake radical change. Visible and continuous support from senior management is also mandatory to drive change. Re-engineering involves risk and therefore perfection cannot be expected. To see it through, a 'stick-with-it' attitude must be taken – do not stop at early successes or problems. Finally, always remember the customer and look at processes from their perspective. The objective of re-engineering is to improve the cost, speed and quality of services that are provided to citizens; therefore re-engineering should create new systems that are customer-focused and add value for the customer.

4.8 GPR and governance

According to the United Nations Development Programme (undated), 'Good governance is, among other things, participatory, transparent and accountable. It is also effective and equitable. And it promotes the rule of law. Good governance ensures that political, social and economic priorities are based on broad consensus in society and that the voices of the poorest and the most vulnerable are heard in decision-making over the allocation of development resources'.

A key element in governance is how information is disseminated and used to hold governments to account for their actions, and how information could create the impetus for change. Since GPR is focused on citizens, it transforms the traditional citizens-to-government relationship where government provides inadequate information to protect vested interests.

Re-engineering forces bureaucrats to completely rethink the way business is conducted and react to the demands made by their constituents. Information could be provided with ease of access through a public-facing portal, and the veracity of the information could be confirmed through a variety of means – for instance, companies who were successful in procurement opportunities, and media reports on government performance. The ability of citizens and other stakeholders to assess government performance creates necessary tension and pressures that force government to be more open and accountable. Re-engineering also leverages modern technologies to create virtual pressure groups that cross geographical and social barriers with a singular focus to effect change or hold politicians to account for their actions.

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