# E-billing and E-payments

## Report to State Services Commission

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This report was prepared by the NZ INSTITUTE OF ECONOMIC RESEARCH (INC.)
for the E-government Unit of the State Services Commission

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## Executive Summary

The E-government Unit (EGU) of the State Services Commission (SSC) co-ordinates the activities of separate agencies, monitor their progress and maintain the overall vision, as well as to take the lead on some projects. E-government means using digital technology to enable citizens, taxpayers and visitors to access information and services from the New Zealand Government.

As part of the process of considering the use of such technology, the SSC has commissioned the New Zealand Institute of Economic Research (NZIER) in conjunction with Lazar Associates, to examine the potential for e-billing and e-payments within the government.

In particular, the brief was to report on five key issues associated with e-billing and e-payments:

- The scope of demand, both current and future, for this service within the state sector.
- The drivers of demand for transacting online, from the perspective of the government and its customers.
- The timeframe within which a system could be implemented.
- The products available in the market for completing transactions online.
- Any legal issues regarding development, implementation or operation of an e-billing and e-payment system.

This report includes consideration on all these questions. Tables display the potential transaction volumes and the type of agency involved. A list of demand drivers is discussed and a careful survey of the products in the market included.

A lengthy section considers the legal aspects of e-billing and e-payment but suggests that with care these can be accommodated.

Finally a discussion of the potential to select a technology now is included. It develops some salient circumstances and on the basis of these factors, particularly the importance attached to a decision being taken on the basis of an operating site providing services in the New Zealand context, suggest that the time is not right.

The view is that the benefits from taking a decision today are not outweighed by the risks. It suggests that there are insufficient available options now.

So the conclusion is that there be a delay of, say 12 months when the issue could be carefully re-appraised in the light of the inevitable technological and commercial changes over that time.

 

# CONTENTS

 

# 1. INTRODUCTION

The E-government Unit (EGU) of the State Services Commission (SSC) co-ordinates and manages the projects required to achieve e-government. The role of the Unit is to co-ordinate the activities of separate agencies, monitor their progress and maintain the overall vision, as well as to take the lead on some projects.

E-government means using digital technology to enable citizens, taxpayers and visitors to access information and services from the New Zealand Government.

As part of the process of considering the use of such technology, the SSC has commissioned the New Zealand Institute of Economic Research (NZIER) in conjunction with Lazar Associates, to examine the potential for e-billing and e-payments within the government. For the purpose of the investigation, the state sector was to be considered rather than the wider notion of government, which in the context is usually taken to include both central and local government.

In particular, the brief was to report on five key issues associated with e-billing and e-payments:

- The scope of demand, both current and future, for this service within the state sector.
- The drivers of demand for transacting online, from the perspective of the government and its customers.
- The timeframe within which a system could be implemented.
- The products available in the market for completing transactions online.
- Any legal issues regarding development, implementation or operation of an e-billing and e-payment system.

This report includes consideration on all these questions.

# 2. BACKGROUND

The scope of the demand for an e-billing service can be largely associated with the scale and distribution of the variety of payments to the government. The examination of these should reveal the incidence of various sized total transfers, and thus the possible dimensions of the potential for public sector e-billing. At the least it should give some indication of the diverse nature of the transactions and the number and spread of agencies potentially involved.

The focus here is on operational revenue, as an indicator of the general scale involved in the public sector revenue flows.

## 2.1 Types of payment to the government

Operational revenue earned by the government can be divided into revenue levied through the Crown's sovereign power, and revenue earned through operations.

 

These categories can be further dis-aggregated into:

- Direct tax (e.g. company tax, PAYE and withholding tax on interest income).
- Indirect tax (e.g. GST, excise duties, customs duty and road user charges).
- Compulsory fees, fines, penalties and levies (e.g. court imposed penalties, police fines and health and safety levies).
- Investment income (e.g. interest payments on student loans and dividends from state-owned enterprises).
- User charges from the sale of goods and services (e.g. Conservation permit charges, birth certificate fees).
- Other operational revenue (e.g. petroleum royalties, income from the Earthquake Commission).

***Table 1 Government revenue, 2000/01 Dollar millions, estimated actual***

| | |
|---|---|
| Direct taxation | 23,662 |
| Indirect taxation | |
| GST | 9,042 |
| Excise duties | 2,055 |
| Customs duty | 640 |
| Road user charges | 537 |
| Other indirect taxation | 550 |
| Investment income | 1,316 |
| Sale of goods and services | 656 |
| Other operational revenue | |
| Recoveries from ACC | 102 |
| Petroleum royalties | 68 |
| Other operational revenue | 193 |
| **Total Revenue** | 39,201 |

Note: Revenue collected by Crown Entities (such as the Land Transport Safety Authority on behalf of the Ministry of Transport) is excluded, due to current accounting policy.

Source: New Zealand Treasury

The table below sets out estimated actual 2000/01 government revenue by department. Crown Entities (CEs) are excluded from this table. They are washed up in the presentation of the government accounts as a single line item that records total net CEs surpluses.[1] The only way to get an accurate picture of the full scope of CE transactions with the public would be to go through each CE's annual report individually – this exercise could be carried out, but was considered to reach well beyond the scope of this particular project, at this time.

Note also that an indication of the real dimensions of the scope and scale of government e-billing would require an investigation of the number and typical distribution of the individual transactions as well as an investigation of the total flows.

[1] This is expected to change next year, when the Treasury implements full line-by-line consolidation of the Crown accounts.

Such data is not readily available to us, but some idea of this could be developed by consultation with the critical individual agencies, if it was thought to be worthwhile at some stage.

***Table 2 Government revenue by department***

Dollars 000

| | Tax revenue | Compulsory fees and fines | Other operating revenue | Sale of goods and services | Investment income |
|---|---|---|---|---|---|
| Audit | - | - | - | 25,949 | - |
| Economic Development | 106,779 | 10 | 97,394 | 52,694 | 140,000 |
| Conservation | - | - | 11,116 | 18,525 | - |
| Crown Law | - | - | - | 500 | - |
| Cultural Affairs | - | - | - | 657 | - |
| Customs | - | - | - | 6,277 | - |
| Customs Tax | 6,789,000 | - | - | - | - |
| Defence | - | - | - | - | 880 |
| NZDF | - | - | - | 19,865 | - |
| Education | - | - | 11,140 | 7,039 | 943 |
| ERO | - | - | - | 224 | - |
| Environment | - | - | 411 | 20 | 60 |
| MFAT | - | - | 400 | 2,559 | 8 |
| Health | - | - | 102,170 | 8,395 | 38 |
| Housing | - | - | - | 7,997 | - |
| IRD Department | - | - | - | 31,918 | - |
| IRD Crown | 28,901,000 | 189,180 | - | - | 240,986 |
| Internal Affairs | - | - | - | 57,892 | - |
| Labour | - | 30,688 | 12 | 54,860 | - |
| Maori Development | - | - | 3,802 | 211 | 920 |
| National Library | - | - | - | 3,080 | - |
| Clerk of the House | - | - | - | 6 | - |
| Ombudsmen | - | - | - | 6 | - |
| Parliamentary Counsel Office | - | - | - | 35 | - |
| Parliamentary Service | - | - | - | 510 | - |
| Parliamentary Commissioner for the Environment | - | - | - | 3 | - |
| Police | - | 85,900 | - | 4,958 | - |
| Prime Minister and Cabinet | - | - | - | 48 | - |
| MORST | - | - | - | - | - |
| Serious Fraud | - | - | - | 9 | - |
| Social Policy | - | - | - | - | - |
| SSC | - | - | 8,098 | 517 | - |
| Statistics | - | - | - | 4,547 | - |
| LINZ | - | - | 7,586 | 79,521 | - |

***Table 2 Government revenue by department***

Dollars 000

| | Tax revenue | Compulsory fees and fines | Other operating revenue | Sale of goods and services | Investment income |
|---|---|---|---|---|---|
| Transport | 688,925 | 10 | 7,000 | 7,970 | - |
| Women's Affairs | - | - | - | - | - |
| Youth Affairs | - | - | - | - | - |
| Fisheries | - | 100 | 40,431 | 3,013 | - |
| Corrections | - | - | - | 23,498 | - |
| Courts | - | 73,850 | 2 | 69,644 | - |
| Treasury | - | 354 | 45,002 | 22,323 | 357,896 |
| Justice (Ministry) | - | - | 476 | - | 42 |
| Justice - OTS | - | - | 5,366 | - | 53 |
| MAF | - | - | 150 | 125,042 | 1,700 |
| DWI | - | - | 19,995 | 7,600 | 35,152 |
| Child, Youth & Family Services | - | - | 301 | 1,449 | - |
| Archives New Zealand | - | - | - | 492 | - |
| Reserve Bank/DMO | - | - | 1,816 | 5,835 | 537,322 |

Source: New Zealand Treasury

## 2.2 Existing payment options

Departments currently accept a range of different types of payments. Although there is significant variation by department, some or all of the following options have been adopted by government agencies.

***Table 3 Payment options***

| | Cash | Cheque | Credit card | Direct debit |
|---|---|---|---|---|
| In person | ✓ | ✓ | ✓ | |
| Post | ✓ | ✓ | | |
| Phone | | | ✓ | ✓ |

Notes:

Source: NZIER

The State Services Commission (SSC) has provided the minutes of a meeting of a small number of government agencies who provided a summary of their own billing operations.[2] This illustrates that government agencies are diverse in their payment systems.

[2] Meeting of e-billing focus group, 20 October 2000.

- Land Transport Safety Authority (a Crown Entity)
  - Mostly authorises agents to transact on their behalf. [Text Deleted]
  - Photo drivers licenses (user charge) paid over the counter. No Credit cards are accepted.
  - Registration and licensing of vehicles mostly paid over the counter – WOF online has reduced the compliance cost on consumers who are no longer required to retain and produce the WoF.
  - Road user charges paid over the counter (revenue collection for MoT) no credit cards accepted. However, some transport firms have authority to purchase these licences at their premises using direct debit facilities. This is a cheaper option as the regulated transaction fee for this is less than that of the counter service.
  - ACC payments (non-tax) collected with other motor vehicle charges.
- Inland Revenue
  - Administers 37 different revenue streams.
  - WestpacTrust is authorised to accept payments on behalf of Inland Revenue.
- Public Trust
  - Charges fees for investment, mortgage and tenancy services.
  - Uses automatic payments, direct debits and deductions from interest payments.
  - [Text Deleted]
- Land Information NZ
  - Services include lodgement of plans, and title searches.
  - Progressively offering services online. [Text Deleted]
- Ministry of Fisheries
  - The main revenue stream is the Quota Management System. All payments are by cheque from 10 large and around 1,000 small quota holders.

## 2.3 What is e-billing?

E-billing is a term, somewhat loosely used here to cover what can be analysed and discussed as two distinct processes.

These are:

1. **E-billing,** itself, which is associated with the process of sending an invoice to a customer or client to indicate that an amount is due and owing; and
2. **E-payment,** which is the 'other half' of the transaction whereby the amount involved is transmitted from the billee to the biller.

It is used in the title of this paper to cover a system which enables a person to log onto an internet site and both receive and make payments, in this case to a government agency counterparty, electronically. The internet site could, in principle be, a particular agency's website, the NZGO website, or the website of the service provider.

### 2.3.1 E-payments by Government

Aside from normal procurement of goods and services, which involve a variety of systems being used by different agencies, there are several major flows of money outward from the New Zealand government.

In relative volume terms, these come under the following broad categories:

- Benefits, which have been delivered to citizens via direct bank credit for a substantial period – more than ten years. This method of transfer substituted for a number of previous systems including direct mailing of cheques;
- Tax refunds, which are delivered to recipients (which include a diverse range of corporate entities and organisations, as well as natural persons) by diverse methods, including bank credit, direct cheque mailing, and crediting against other tax debits of the recipient or another party;
- Public service payroll, which is typically direct credited to recipient bank accounts, these days, though previously was paid via cheque mailings and even in cash as late as the 1970s; and
- Other miscellaneous transactions which are typically 'one-offs' and handled as appropriate by the government organisation concerned.

This report does not go further into the methods of e-payment used by the New Zealand government as it was not the focus of the brief.

### 2.3.2 E-billing by Government

E-billing typically operates using a consumer initiated direct debit (CIDD). The first time the user operates on the system they have to complete a paper form giving the service provider authorisation to pay bills from their bank account (this is a bank requirement).

Notification that the user has a bill is sent via email, and the user is able to log onto the site and choose how much and when to pay the bill. The e-payment can be thought of as a direct debit on demand, in a similar way to phone banking.

For several of the important agencies of the New Zealand government, this system alone would not meet their need. IRD for instance has many transactions where the foundation of the payment is the process of self assessment. Once the numbers have been crunched by the citizen, an appropriate payment or refund is automatically due. This type of transaction will require a carefully designed modification of the usual process as described.

This type of difference is the reason that the choice of a system for the public sector is not merely a matter of joining an existing mechanism – it may lack important features allowing for the variety of business that the public agencies are looking to transact.

E-billing systems can have a wide scope and may include:

- Delivery of the service (the user may pay to receive particular information online).
- Collection of information.
- Issuing invoices or statements.
- Payment.
- Tracking of transactions (from issuing the bill, to payment, to receipt by the creditor).
- Transaction history (storing data on past transactions of a user).

## 2.4 Scope of demand

It is conceivable that in an increasingly wired society the majority, if not all, government transactions could one day be conducted online. This is a significant volume of transactions and represents over $39 billion. Section 2.1 describes the source of Crown revenue and illustrates which departments are likely to have significant

volumes of departmental revenue. In addition to departments, Crown entities such as the Land Transport Safety Authority, the Legal Services Agency, Quotable Value New Zealand and Pharmac, are likely to have monetary transactions that could conceivably be completed online.

However, transactions will only occur online if consumers choose this method of payment. In 1999, Colmar Brunton conducted a poll on behalf of NZ Post, which was planning to set up an e-billing site. Approximately 1,000 telephone interviews were conducted with people aged 18 and over, in New Zealand's 15 main centres. The sample was then weighted to reflect the demographics of the entire population.

Around 26% of those who responded would consider paying their household bills over the internet all or most of the time. Of these, most currently paid by cheque (29.5%), followed by phone banking (21.6%). Overall, 45% of those surveyed would consider using the internet to pay their household bills. Access to a PC was not a key factor, as 31% of those without access to a PC would strongly consider paying bills over the internet, compared to 33% of those with access.

Those who would consider paying bills over the internet were more likely to be younger (under 35 years of age); in a family household (3-5 people) with children under 5 years of age; and full time employed. Retirees and small households (1-2 people) were less likely to consider internet billing.

More recent statistics on internet use are available from the Ministry of Economic Development.[3] Quoting a National Business Review – Compaq Poll, the Ministry reports that 50% of households have access to the internet. 73% of those with internet access use the internet more than once a week, with 28% using it every day. Despite this, only 11% of people had made a purchase over the internet.

This suggests that the potential scope of electronic payments is huge, with the government raising total revenue in excess of $39 billion each year. In surveys, customers have indicated support for online transacting.

# 3. FRAMEWORK

## 3.1 Characteristics of transactions

The purpose of this section is to establish the characteristics of transactions that could affect the requirements of an online system. We have assumed that the government is seeking to implement an electronic interface that will allow households and businesses to make payments to government. We have further assumed that internal transactions between government agencies and payments from government to consumers are not part of this system. The SSC has advised that government to consumer payments are generally made via direct credit. Hence, there is little advantage to an internet based system for these payments. Table 4 describes some specific significant transactions undertaken by government with households and businesses.

[3] Statistics on Information Technology in NZ (2001) Ministry of Economic Development.

### *Table 4 Transaction descriptions*

| | |
|---|---|
| Inland Revenue | Collects regular tax payments from households, businesses and other persons (such as farmers). The level and time payments are made is set by statute. Inland Revenue has a high level of control over the payment method. Information and statements must also be collected, some regularly, some irregularly. Security of information is important. |
| Customs | Collects customs duty from importers (mostly businesses and some individuals). The size of payments is set down by statute. Payments depend on often irregular shipping patterns. Information must be collected and audited. Customers may be based overseas. Security of information is important. |
| LTSA | Collects motor vehicle levies (including road user charges and registration fees) and charges for provision of driver licences. Fees are regulated. Fees are primarily paid on a regular basis. Although information storage is important, relatively little new information is collected at each transaction. |
| Courts | Collects fees for court use and fines and penalties imposed by courts. Payments are irregular and variable in size. Security of information is important. Matching of transaction information with fees and fines imposed is also important. Ability to pay easily, and probably by a range of methods is useful to maximising collection. |
| MAF | Collects revenue from the sale of forest products from Crown forests. Payments are likely to be frequent and variable in size, depending on volume of produce and price prevailing in the international market. Marketing may be important, e.g. for up-selling other products to existing customers. |
| Fisheries | Levies for the cost of fisheries management and collects penalties imposed for over-fishing. Quota payments are regular, and of uniform size, transaction matching is important. Penalties are likely to be irregular and variable in size. |
| Police | Collects traffic infringement fees and revenue from the sale of unclaimed property. Security of information is important. Transaction matching is important. Payments are likely to be irregular, the level of traffic infringement fines is regulated. Other payments may be variable in size. |

Source: New Zealand Treasury

From this table of examples, it is possible to garner a set of criteria that define the key features that transactions between government and public may have.

- Volume of transactions – different technology may be needed depending on the number of transactions it is expected to cope with.
- Regularity of transactions – some departments transact at set intervals with the same customers. This generally means that they know the customers in advance. Others do not know who their customers will be and may only transact once with a

particular customer. Some have control over the timing of payments while others have none.

- Uniformity of size – fees and some fines are of a well-defined size, others will vary depending on the specific transaction.
- Security – while all information held by an individual or business by a third party can be assumed to be confidential, it is likely that the desired security of information will vary depending on its nature. This suggests that a hierarchy of security techniques may be called for to reflect the differing imperatives associated with diverse data that is held.
- Information collection – some agencies use the opportunity of a monetary transaction for collecting other information. It will be important to these agencies that an e-billing system can provide this same data collection function.
- Transaction tracking – some transactions require the user to pay up-front for a service, in this case it is relatively simple to follow through a request and payment with service provision. Where payment occurs ex-post, it is important that information identifying a transaction remains with that payment.
- Control over payment method – sometimes agencies want to be very specific about how a bill may be paid. In other instances, it is preferable to give the consumer a wide range of options in order to ensure that bills are paid promptly. The cost of payment options may also be a factor.
- Who the customer is – if different customer types (household or business) have different expectations, or preferences in paying bills then it may be desirable to reflect this in the options offered. Also, the customer may or may not be known in advance.

### 3.1.1 Direct versus consolidated billing

A key question is whether government wishes to pursue a 'direct' versus 'consolidated' model of electronic billing.

***a) Direct billing***

The direct model involves an unmediated transaction between the customer and the biller, where the billers are individual government agencies. Under this model the biller uses its own corporate web site to present bills to customers and/or send bill summaries via e-mail.

Customers will register with the biller, visit the biller's web site to review bill summaries and then pay the bill, typically using the services of a payment processing agent. In the case of a consumer dealing with multiple government agencies (not unusual, particularly for corporates), this will necessitate multiple registrations, a requirement that international experience suggests yields low rates of consumer uptake and satisfaction.

It is possible to come up with ways of addressing this by having an 'invisible registration system,' that automatically lists all clients with all sites and billers, once approval has been gained. But the complications associated with such a system deserve careful analysis in their own right, and in the end, of course, such an approach shades into a consolidation model. We have not pursued these ideas further.

***b) Consolidated billing***

The alternative, consolidated, model of Internet bill presentment and payment does away with the need for multiple registration by establishing a central billing agent or

consolidator. The consolidator aggregates billing information from multiple billers and prepares bills for presentment through banks or Internet portals. The consolidation process can be 'thick' (i.e. gather transaction details as well as billing data to allow customer transaction query), or 'thin' (i.e. bill summary information only).

Although more complex in terms of its requirement for scaleable aggregation and distribution software, the consolidated approach allows for one-stop bill presentment. This offers considerably greater convenience to the government's various customers, particularly for those customers with extensive and recurring dealings with a variety of government departments. Coupled with the reduction of consumer compliance costs and the realisation of greater efficiencies, the consolidated model appears to offer considerably greater incentives to transact business electronically. From an agency viewpoint also, the fact that development costs and their associated risks are borne mainly by the consolidator may be a significant consideration.

The apparent desirability of the consolidated versus direct billing model gives rise to the question of whether the State Services Commission considers it practicable and desirable to mandate a single system for use by all governmental agencies. This will have obvious implications for the selection criteria and application of electronic billing tools. We note also that there are previous examples of similar sector-wide initiatives that have been taken. Some consideration of these (an obvious example is the single banking relationship contract that the government centrally arranged with WestpacTrust), may provide some insight into the diverse costs and benefits of consolidated billing.

## 3.2 System criteria

Having specified the broad characteristics of transactions that could be undertaken on the internet, the next step is to identify the criteria that an electronic billing system would need to have to complete such transactions.

### 3.2.1 Volume

The volume of transactions completed affects the required speed of the system. The greater the volume of transactions the faster the system needs to be.

The volume of transactions may also affect the cost. Agencies are likely to seek cost conscious transaction methods. If the system has a high fixed cost, it will become more attractive the greater the volume of transactions.

### 3.2.2 Regularity

Whether payments are to be made regularly or irregularly, the system must be readily accessible. If payments are likely to be regular, there may be a need to allow 'search of transaction history,' so that the customer can review previous payments.

### 3.2.3 Uniformity of size

Where payments are of irregular size, the system must be flexible enough to allow payments to vary. Where payments are uniform in size then there may be advantage in allowing customisation so that customers can select the type of payment that they are making. This illustrates the importance of enabling customers to retain control of the size of payment that they authorise.

### 3.2.4 Security

Where the government holds information about private individuals or businesses it is important that systems are in place to ensure that that information remains confidential and that there is clear accountability for any breach in such security protocols.

### 3.2.5 Information collection

Some agencies are likely to seek the ability to customise the transaction with the customer in order to allow provision of information by the customer of relevance to the transaction (such as change of address).

Other customisations may be desirable, such as the ability to consolidate transactions in a way that is consistent with the management accounting requirements of the agency. Some agencies may wish to use the transaction with the customer to increase awareness of other products or services that the entity offers. Paper billing presents this opportunity by allowing additional inserts, for example.

It may also be useful to have the functionality to allow customers to feed-back through the internet transaction, for example, those seeking clarification of a bill, or further information, or extra services.

The system should have the flexibility to be able to respond to changes in the needs of customers or the agency.

### 3.2.6 Transaction tracking

As with all financial systems it is necessary that any electronic system allow details of transactions to be identified throughout the process, and ex-post to be securely audited to ensure integrity of the system.

### 3.2.7 Control over payment methods

Agencies seek to retain control of the methods by which customers can pay in order to create an audit trail and in order to control costs. If some payment methods are unacceptable, for example credit card payments, then the ability to customise the e-billing system becomes important. It assumed, however, that multiple payment methods will be provided for, to allow maximum flexibility, and to encourage consumer uptake.

### 3.2.8 Who is the customer?

Different customers have different requirements, and it is important that these be considered or there will be a low rate of uptake of any new payment system.

For example, business customers may require that the system is compatible with normal business practice, such as their own audit procedures that allow only certain people to authorise transactions. Business customers are likely to have a higher rate of uptake if an electronic system can connect with their own software.

Household customers are likely to focus on ease of use and accessibility of the system. They may also focus on cost.

### 3.2.9 Summary

Having motivated the system requirements from the transaction characteristics, we can now identify the requirements of the consumer, the specific government agency, or government as a whole.

This is given in table 5 below.

***Table 5 System requirements***

| | Customers | Agency | Government |
|---|---|---|---|
| Speed | ✓ | ✓ | |
| Reliability | ✓ | ✓ | |
| Accessibility | ✓ | | |
| Ease of use | ✓ | | |
| Fit with normal business practice | ✓ | | |
| Connectivity with normal software | ✓ | | |
| Cost | ✓ | ✓ | |
| Flexible | | ✓ | |
| Security of information | ✓ | ✓ | ✓ |
| Auditable | | | ✓ |
| Accountability | | | ✓ |
| Ability to customise | | ✓ | |

Source: NZIER

## 3.3 Drivers of demand

There are a number of drivers of demand for e-billing that can be identified from the perspective of customer and government agency, respectively.

### 3.3.1 Cost

Cost is obviously vital. There are several elements to the cost of e-billing. The first cost incurred is the capital expense facing the agency. Also up front are the training and system creation/adjustment costs that inevitably accompany any significant systems implementation. The agency also takes ongoing administrative cost into account when making a purchasing decision. From this perspective, a product that can be purchased off the shelf, with out-sourced backroom responsibility is likely to be more desirable.

The customer also faces cost incentives when deciding how to pay a bill. There is an initial cost associated with set up, including accessing the internet and setting up the appropriate authorities with the bank. The cost of each transaction relative to other ways for paying will also affect whether a customer uses this payment method.

### 3.3.2 Uptake

Uptake by private businesses is also likely to affect demand for e-payment of government bills. There are two reasons to expect the private sector to have an impact. Firstly, the cost of e-billing is likely to be lower if the complementary technology has been widely adopted by the private sector. This is because cost-reducing innovation will already have occurred in house, and is likely to occur more quickly as more people are seeking such innovations. Furthermore, the wider the uptake, the higher the volume of transactions being processed by the service provider, potentially lowering their marginal cost.

Secondly, the wider the uptake in the private sector, the more customers are likely to already be familiar with the technology, increasing use of this payment method for government bills.

### 3.3.3 Features

System features will be a driving factor in the level of demand, and supply of this payment type. The previous section discussed system requirements. These points can be reiterated here. Customers have certain requirements when paying bills (such as reliability, convenience and security).

The proposed system would need to meet these requirements and those of government. If the product can connect with the internal billing or accounting system of government or its customers then this will also boost demand.

### 3.3.4 Risk

Finally, risk will affect the uptake of e-payment billing methods by government agencies. The government sector is generally risk averse, and is less likely to adopt a system that has significant implementation or support risks. This means that it will be important that products are demonstrably able to fulfil system requirements and that the level of risk that the supplier will later leave the market, stranding the product, is low.

# 4. LEGAL ISSUES

## 4.1 Privacy

### 4.1.1 Online Identification

Among the perceived benefits of electronic transactions between citizens and governments is the opportunity to collect 'customer' information that can be used as a key input to operational and policy decision making.

Billing transactions are a fruitful source of information that allows strategic planners to sift and analyse transactions to identify key trends and unmet service needs, and, on the basis of this, determine the future operational priorities of an agency.

For the private sector, that information is an increasingly significant source of business advantage. The variety and sophistication of online identification technologies have increased accordingly, allowing the ready collection and display of an individual's

personal details, purchasing history and commercial value. In marketing terms it allows a focus beyond groups and subsets of groups, to the 'customer of one'.

As attractive as this focus might be to public sector planners, the possibility that an electronic transaction will provide an instant window on a citizen's details represents a real threat to personal privacy while online.

If the objective of electronic billing is to encourage citizens to adopt a low-cost transaction channel, the belief that it will permit unwanted intrusions by government agencies into personal information is likely to act as a major disincentive.

Fortunately, New Zealand's privacy legislation (the Privacy Act 1993) offers a broad protection of individual privacy that should address citizen's concerns. Technology neutral, the Act specifies a number of Information Privacy Principles[4] that apply to all personal information collected by an agency, irrespective of whether that information is held in electronically or in manual form[5].

Those principles specify that:

- personal information must be collected for a lawful purpose;
- personal information must be collected directly from the individual concerned;
- the individual must be made aware of a number of matters (including that information is being collected, the purpose for which the information is being collected, the intended recipients of the information, and the name and address of the agency collecting the information);
- personal information must not be collected in an unlawful or unfair manner;
- personal information must be protected by adequate security systems;
- individuals are entitled to have access to, and request correction of, personal information held about them;
- personal information shall not be used unless it is accurate, up to date, complete, relevant and not misleading;
- agencies must not hold personal information for longer than it is required; and
- personal information must not be used for any purpose other than that for which it was collected.

None of this excludes the use of billing transactions to create citizen profiles. They do, however, require that such use is both transparent and done with the consent of the individual concerned. The question for public sector agencies, then, is whether the perceived benefits of this offset the risk that the bulk of citizens will avoid electronic transactions in favour of traditional – and therefore less intrusive - billing and remittance channels.

### 4.1.2 Caching

Caching occurs when any web page accessed by a user is stored by that client's computer (client caching) or by the network server that provides the user with access to the internet (proxy caching). When a web page is requested – as it would be in the

[4] Privacy Act 1993 s6.

[5] 'Personal information' is information about an identifiable living individual and 'agency' is defined as any person or body of persons, whether corporate or unincorporated, and whether in the public sector or the private sector (refer s2 of the Act).

course of any billing transaction - the user's computer or network server checks whether it holds a copy of that page. This allows the page to be displayed without the need to access it through the internet. This provides faster access and reduces the costs of the transaction.

Under the terms of the Privacy Act 1993 [6], client caching is generally exempt from the Information Privacy Principles. The Privacy Commissioner is also of the opinion that proxy caching, where it is purely for technical reasons, is also exempt. The Commissioner has, however, noted a potential problem where caching occurs for profiling purposes.

These issues have been explicitly considered by the New Zealand Law Commission in its review of Electronic Commerce issues[7]. The Commission has concluded that while caching for technical reasons would not breach the Privacy Act, the use of such data for other purposes falls within the Information Privacy Principles. The need for special legislation to ensure that privacy protections extend to this category of data collection is considered unnecessary.

### 4.1.3 "Cookies"

Although not a necessary function of online billing, another web-based innovation has been the use of 'cookies' or small pieces of code, to build profile on the needs, preferences and patterns of expenditure of any individual visiting particular web sites. Cookies work by placing an identifying code on the hard drives of those who visit the site. This code allows the visitor to be tracked as they travel through the website and to be recognised on subsequent visits.

While useful in facilitating user interaction and improving service delivery, the innovation may constitute a significant threat to personal privacy. That threat has been evaluated by the Law Commission[8], which considers that the Privacy Act offers sufficient protection against the use of cookies in New Zealand.

## 4.2 Consent to Use of Electronic Communication

The temptation to require customers to transact business electronically is addressed in the (current) Electronic Transactions Bill. Clause 16(1) of the Bill notes that nothing in the Bill's provisions relating to the application of legal requirements to electronic transactions, requires a person to use, provide or accept information in an electronic form. Such transactions must be with the person's consent. The Schedule to the Bill specifies those enactments and provisions exempted from the requirement, but as a rule agencies should assume the consent requirement applies.

## 4.3 Authentication

The authentication requirements unique to electronic documents have been considered by The New Zealand Law Commission[9]. The Commission considers that an electronic document is inherently no more anonymous that any other form of communication and that physical authentication requirements such as signatures have their computer-

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[6] Privacy Act 1993, S56

[7] Electronic Commerce Part Three: Remaining Issues, December 2000, para 49.

[8] Electronic Commerce Part Three: Remaining Issues, New Zealand Law Commission, Report 68 December 2000, paras 50-51.

[9] Electronic Commerce Part One: A Guide for the Legal and Business Community, October 1998.

based equivalents. The facilitation of electronic commence by explicit provision for electronic signatures, for example has been addressed in the Electronic Transactions Bill. This – with limited qualification - provides for the validity of electronic documents and signatures in instances where there is a legal requirement for a document to be in writing.

Evidential issues with respect to electronic transactions are is addressed in the Draft Evidence Code, which is currently under consideration by the Ministry of Justice.

## 4.4 Records

Under the Electronic Transactions Bill[10], any legal requirement that documents be given and recorded in writing (such as credit card bills) are deemed to be met by giving or recording such documents in electronic form. The proviso is that this information:

- be readily accessible so as to be usable for subsequent reference; and
- be consented to by the person being given the information.

The only other exemptions in respect of the giving or recording of information electronically arise in respect of certain enactments and provisions. These are listed in Part 1 and Part 2 of the Schedule to the Bill.

## 4.5 User charges and 'convenience fees'

Agency enabling legislation and accompanying regulations often make provision for the specification of user charges, or the method for calculating user charges for government services. There is no consistent approach. Regulations, moreover, are not always technologically neutral and may not anticipate electronic transactions or the application of user charges to them. This will need to be addressed by each agency in developing their electronic billing capacity.

With respect to credit card transactions, any potential on-charging of credit cards charges to the customer is subject to the international franchising rules under which the local franchises and their agents, the banks operate. These rules do not allow the cost of credit card transactions to be passed to the customer and this policy is reflected in merchant agreements between the banks and billing agents. It is also strictly enforced, as recent publicity has shown.

Mastercard, however, is reported to be willing to entertain a more liberal approach with respect to 'convenience fees' that may be on-charged to the customer. While this might have the benefit of reducing costs to government departments, it is also a disincentive on customers and may impact adversely on uptake. The ability of government agencies to add ("transaction") charges to existing statutory fees is, moreover, limited, while the precedent for across-the-board on-charging practices is likely to be politically untenable because of the adverse impact on all consumers.

## 4.6 Electronic money

The advent of electronic money (EM) or digital cash has been driven by the cost of existing forms of payment. It is clear that, while the consumer and biller may together elect to accept EM, it does not qualify as legal tender. Parties may decide to accept EM, but that – like credit cards - will be subject to the particular agreement between the

[10] Clauses 18-20

consumer and the biller. The biller (agency) may refuse EM payment except where there is a clear contractual obligation to do so. Because EM is not legal tender, the biller bears the additional risk that the issuer will default on their obligation to redeem the EM for currency.

The Law Commission notes that:

> *"The question whether payment by an EM system would constitute an absolute discharge of the payer's liability, or whether the presumption of conditional payment would apply, would fall to be decided on the facts of the particular payment system."*

# 5. PRODUCTS

## 5.1 Key aspects of the system envisaged

One of the chief objectives of an electronic billing system must be to encourage consumer uptake. Ease of access to billing information, flexibility of presentment and payment options, privacy and security, and reliability are accordingly among the key consumer-orientated system requirements.

The relatively low levels of uptake of solutions built around a direct billing relationship with the customer suggests, moreover, that convenience is another major consideration. The perceived need to provide customers with an integrated view of their accounts has driven the more recent focus by providers on consolidated billing and online account aggregation.

From the perspective of the biller – in this case government agencies – cost, reliability, security and the ability to integrate with existing databases and systems are critical.

## 5.2 Possible solutions

Despite the seeming multiplicity of electronic billing products and tool sets, the choices in New Zealand are, in real terms, quite limited. Most systems are US based and, while there is no issue in respect of routine credit card transactions, any requirement to handle multiple methods of payment is likely to require extensive product customisation. The associated costs and development risks may effectively rule these systems out of consideration.

The desirability of a consolidated solution, moreover, further constrains the choice, with only NZ Post and Telecom positioning as potential billing consolidators.

Identified products/service providers include:

- Arc eBill (NZ Post)
- ibilling (Telecom/esolutions)
- iPlanetBillerXpert (Sun Netscape)
- BPay
- iForce

## 5.3 Brief product evaluation

[Text Deleted]

# 6. CONCLUSIONS

## 6.1 Critical e-billing matters

### 6.1.1 Consolidation

Notionally at least, it is clear that there are significant operational efficiencies and cost savings to be realised from the wholesale uptake of electronic billing through the government sector. The broad nature and quantum of government transactions as laid out above underscore that potential.

International experience suggests, however, that the promise of direct electronic billing has, for the most part, been unfulfilled. Attention has shifted, as a consequence, to the consolidated approach to bill presentment and payment. The expectation is that the enhanced customer convenience involved in the consolidated approach will result in a significantly greater uptake.

For government, the consolidated approach has a number of attractions, not least of which are the avoidance of massive direct billing duplications, and the fact that the cost and risk of systems development and management will be borne by the billing consolidator, who can be structured to best handle them. The opportunity to obtain leverage from the total scale of joint purchasing and investment is also a positive incentive

### 6.1.2 Finding a Consolidator

The capacity to implement a government-wide consolidated billing model is, of course, contingent on having an organisation on the ground locally, that is able to act as a billing consolidator.

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The option of government itself moving to fill any gap might be considered. This sort of strategy, however, carries with it some significant issues in respect of the machinery of government and the role of government in what is, at heart, an exclusively commercial enterprise and is likely to become a contested sector of the electronic market place.

As our earlier report on IT management[11] in the public service made clear, the task of managing cutting edge technology is demanding. It requires a culture and a series of systems that are scarce. Perhaps most concerning is the risk assessment environment that the public service operates within. It seems to be very unaccepting of failure[12] even where high risk projects are involved.

[11] NZIER/Simpl Group (2000) *Information technology projects: lessons for the public sector in New Zealand*, Report to the Department of Prime Minister and Cabinet.

[12] For a discussion of this aspect of the public sector see Sundakov and Yeabsley (2000) *Risk and the institutions of government*, NZIER monograph.

The managerial demands of risk management and the costs of building and supporting scaleable aggregation and distribution software, as well as the need to manage a diversity of agency and banking relationships themselves militate against this option.

## 6.2 Potential solutions

To consider potential solutions sensibly we have had to add some extra aspects to the problem as posed to us. The supplementary considerations we judge as important are:

- Risk, in terms of avoiding failure, including cost escalation, is important and needs to be given a high degree of salience in the consideration of this development;
- This is an area of rapid development, with a series of new systems 'around the corner' in terms of actual availability in New Zealand. And whatever decision is taken in relation to the system of choice, new technology and other changes will mean it will have to be revisited. And at that time the salient issues could be completely different, so a limited lock-in would be sensible;
- The government interest in this type of development is not commercial, so there is no real prime mover advantage here, in terms of early adoption to offset any failure risk;
- The solution adopted will be more useful the higher the uptake rate among the counter-party group, and we know that they have a diversity of systems in operation already;
- The technology here is to be facilitating – in the sense that its aim is to bring a better level of service to citizens, rather than be an end in itself; and
- Citizens are not interested generally in the way that government organises itself. They want things to be simple and natural – to the extent that they resent their compliance costs. This suggests that they want a single system to interact with.

From the last point we suggest that the government will wish to move towards a single consolidated system. In the meantime, they should probably avoid too much experimental proliferation of direct billing alternatives through individual departments, though such testing can be helpful.

Because the issue is one of timing of moving to an e-billing system - so it is about when as well as what – the solution needs to be taken when the degree of assurance that the advisors can offer about performance and reliability is high. In our view there is no such assurance available today.

We would also wish to see an emerging competitive market for consolidation services to try to exclude the potential situation of a single supplier becoming powerful in terms of determining further developments – this is a risk inherent in the consolidation approach. Again there is no real set of alternatives available today. These imply that there may be good reason to delay the specification of an e-billing strategy pending the evolution of the Telecom and NZ Post systems and the potential entry of banks or other providers into the consolidation space.

At present NZ Post is the only organisation positioning actively as a consolidator. The Telecom-esolutions offering is not expected to be available until next year. It remains to be seen whether NZ Post will attract the critical mass of billers required to make its offering attractive to consumers.

We think it important that any decision should be taken on the basis of an operating site providing services in the New Zealand context.

So our strong view is that the benefits from taking a decision today are not outweighed by the risks. We cannot recommend selecting any of the available options now. We rather suggest that there be a delay of, say 12 months when the issue could be carefully re-appraised in the light of the inevitable technological change over that time.

## 6.3 Breathing space

We would not, though counsel mere delay. The postponement of a choice provides a breathing space for the government sector to pull its act together in a manner more effective than today.

We note the following areas as worthy of consideration for action in the meantime:

- **Testing** via selected agencies, allowing volunteers to try their hands and skill sin the area would produce a deal more working knowledge of the advantages and pitfalls;
- **Public transparency**, opening a sustained dialogue with the key user groups to bring them into the party as smoothly as possible;
- **Analysis** of the payment systems to see what can be brought along in that area; and
- **Encouragement** of any systems that are functioning elsewhere to show some interest in this country.

 