

# DEVELOPMENT ASSESSMENT FORUM

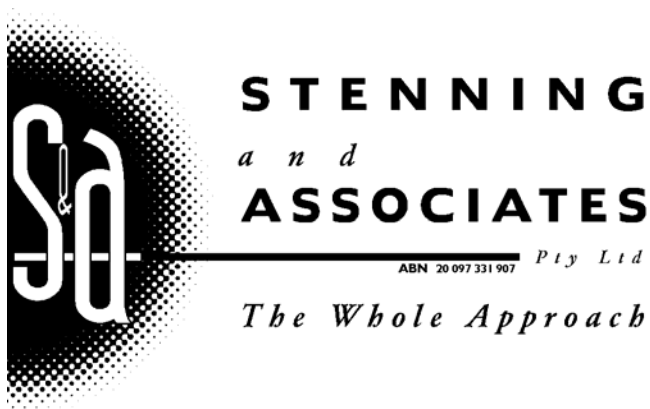
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## *Benefit Cost Analysis for Electronic Development Assessment*

### *Final Report*

*May 2004*

Version 1.0





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This document requires the following approvals for release to client.

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## DISCLAIMER

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# GLOSSARY

ABS	Australian Bureau of Statistics
ACLG	Australian Classification of Local Government
Baseline scenario	Where a national standard communication protocol for DA data does not exist.
DA	Development Assessment
DAF	Development Assessment Forum
Discount Rate	The rate at which a dollar is held to lose value as the time at which it is to be received becomes more distant
e-Commerce	Electronic Commerce
EDA	Electronic Development Assessment
eDA scenario	Where a national standard communication protocol has been implemented.
EDMS	Electronic document management systems
e-Government	Electronic Government
e-lodgement	Electronic lodgement
ICT	Information and communication technology
Net Present Value	The future stream of benefits and costs converted into equivalent values today. This is done by assigning monetary values to benefits and costs, discounting future benefits and costs using an appropriate discount rate, and subtracting the sum total of discounted costs from the sum total of discounted benefits.
NOIE	National Office for the Information Economy
NPV	Net Present Value
XML	eXtensible Markup Language

# EXECUTIVE SUMMARY

## Purpose

This report examines the potential benefits and costs arising from the proposed introduction of a National Standard Communication Protocol for the electronic exchange of development assessment (DA) information (proposed eDA protocol). The information in this report can be used to assist in building stakeholder support for the proposed protocol and inform the design of the implementation strategy.

## Background

This report is part of a suite of work stemming from DAF's establishment of the electronic Development Assessment (eDA) Project, the aim of which is to create an eDA protocol for transferring DA data electronically.

A communications protocol is simply a standard for the exchange of data electronically by different computer applications (eg, databases or workflow management applications etc). The form a protocol can take can vary, however eXtensible Markup Language (XML) is rapidly becoming an accepted format for such protocols as it is system independent.

The focus of DAF's eDA project is to develop a protocol that enables existing electronic information systems and processes to communicate more readily. It will not require Government Agencies to adopt a common set of DA data for development applications and their subsequent processing. Rather, it simply describes a standard structured method for presenting the DA data required by Government Agencies in an electronic format.

The scope of this report is confined to considering the impact of the proposed eDA protocol on the lodgement of a development application and associated processes for acknowledgements, requests for information, consultation, referral and decisions. Processes involving pre-lodgement, decision review/appeal, DA compliance and feedback to policy makers were out of scope.

## Project Scope

Due to limited data availability, time and budget limitations, the scope of the quantitative analysis component of this report focused on selected key impact areas on local government and industry.

The project involved two phases:

### Phase 1

- Determining a Common Elements DA Framework Model and costing model and methodology;

### Phase 2

- Identifying and quantifying the changes in the costs/benefits in selected areas of the Common Elements DA Framework arising from the introduction of the proposed eDA protocol. This is the subject of this report.
- Evaluating appropriate models for the ongoing development, maintenance and support of the proposed eDA protocols. This information, alongside an assessment of the relevant implementation and maintenance issues, project risks and critical success factor metrics, was used to develop an optimum value proposition for the sustainable implementation and maintenance of the proposed eDA protocol. This has been dealt with in the companion report titled *Implementation Options for National Standard Communications Protocol for Electronic Development Assessment*.

## Common Elements DA Framework Model

With reference to DAF's *Agreed Principles of Leading Practice in Development Assessment Processes* and relevant DAF publications<sup>1</sup>, a draft Common Elements DA Framework Model was developed representing the DA process. This draft Model was presented to stakeholders during the consultation process. The Model was then refined in light of stakeholder comments.

The final model illustrates, at a high conceptual level:

- The common elements of the DA process as identified in the *Agreed Principles*. The Model does not include activities related to Appeals or enforcement/compliance as these components of the DA process are outside the scope of this project.
- The key participants in the DA process for each common element.
- The information flows between the key participants.

Based on consultation responses, it is apparent that existing data flows between participants in the DA processes are predominately hard-copy based (faxes are considered hard copy data flows), with few examples of significant electronic exchange of DA data.

## Benefits and costs of eDA

Based upon the Common Elements DA Model Framework and consultation with stakeholders, a range of potential benefits and costs were identified that are likely to arise following the implementation of the proposed eDA protocol. It was readily apparent that:

- The major benefits flowing from the implementation of the proposed eDA protocol are:
  - Avoided costs for industry and Decision Authorities, such as reduced costs associated with interactions between clients and Decision authorities, lodgement, data entry, publishing costs, administration, filing and archiving and so on.
  - Opportunity costs for industry associated with reductions in the time taken to receive a decision on a DA transaction.

The major costs involved are establishment costs associated with incorporating the proposed eDA protocol in local government/vendor software and potential increased printing costs for some participants to the extent that they require hard copies during the assessment process. These latter costs can simply be cost transfers between applicants, Decision Authorities, Referral Agencies and Experts and as such will probably be reflected in application charges.

## Drivers and barriers of eDA

The report identifies a number of drivers and barriers that can encourage or impede the realisation of benefits and costs associated with the introduction of the proposed eDA protocol. These are illustrated in the following table.

Drivers	Barriers
Development industry expectations	Low incentive to implement eDA for local governments that have low volumes of development applications
Local government moves to improved client service	Security implications of online transactions
Demand for interoperability	Cultural barriers in the DA industry and Government Decision and Referral Authorities

1 Principally the document 'State of Play' – *Comparison of Planning Systems in Australian States and Territories*, National Office of Local Government, October 1998

Drivers	Barriers
Initiatives seeking to reduce time delays due to increasing complexity of planning systems and processes	Legislative barriers and authentication requirements
Online provision of other services by local government and other tiers of government	The cost of implementing eDA for legacy systems
Industry demands for consistency in DA systems and processes	The costs and resources required for the ongoing management of the proposed eDA protocol
Desire of software developers/vendors to maintain their competitive advantage	Reluctance by some local governments to use alternative standards
Incentives to reduce costs for local governments with high volumes of development applications	
Increased deployment of integrated electronic data/document management systems by state and local governments	

### Estimating the benefits and costs of eDA

Due to time constraints, data availability issues and budget limitations, the scope of estimating the benefits and costs associated with the introduction of the proposed eDA protocol focussed on quantifying key impact areas on local government and industry. This was done by collecting cost data and processing time data for two scenarios:

**Baseline scenario:** This is where a national standard communication protocol for DA data does not exist. This does not imply that there is no electronic lodgement of development applications, exchange of DA data or associated online services. Rather, any existing initiatives in that area have not been facilitated by a national eDA standard.

**eDA scenario:** This is where the proposed eDA protocol has been implemented and is being maintained. Importantly, this scenario confines itself to quantifying the direct benefits and costs (or the first round effects) associated with the protocol.

The benefits and costs associated with moving from the baseline to the eDA scenario were then calculated for the following selected impact areas. These were identified as the areas where the main benefits and costs associated with the introduction of the proposed eDA protocol were likely to be broadly centred.

#### Lodgement Phase

- Costs to Decision Authorities of establishing electronic lodgement and related online services for development applications.
- Benefits to Decision Authorities of receiving DA applications electronically (rather than hard copy).
- Benefits to industry associated with the availability of electronic lodgement, including reduction in time taken to process development applications.

#### Notification/Consultation Phase

- Costs to Decision Authorities due to the need to print their own hardcopies of plans etc.

#### All Components

- Benefits to Decision Authorities in terms of other avoided costs due to the adoption of eDA initiatives.



- Benefits to industry of the reduction in time taken to process DA applications.

Due to a lack of available benefit and cost data relating to eDA, data was sought from a maximum of up to six local governments. The aim was to obtain data that would provide a broadly indicative quantification of benefits and costs in those areas of the Common Elements DA Framework Model where the impacts of the proposed eDA protocol are concentrated.

This approach has imposed some significant limitations on the quality of the data and, hence, the results arising from the model. These include

- The results are based on **very limited data** and no firm conclusions can be drawn on how representative this data is of local governments nationally. Not all of the selected local governments were able to provide the requested data and, in a number of cases, the data that was provided required manipulation in order for it to be used in model.
- The limited nature of the data meant that only a single cost per development application transaction was calculated for local governments and then applied across different local government size strata. It is likely that there would be some differences in the cost per transaction between these strata, with some economies of scale being experienced by larger local governments.
- There is a reasonable degree of confidence in the quality of the data provided for the baseline scenario, as data from different sized local governments was relatively comparable. However, while those local governments with eDA experience that were consulted had reasonable qualitative data on their eDA experiences, they did not have detailed supporting quantitative data. Accordingly, the data provided for the eDA scenario was considered less reliable as an indicator of expected local government experience.

To overcome these data problems, a number of critical assumptions were made regarding:

- |  |   |
|--|---|
| • The elasticity of demand for DA transactions.                    | • Benefits to local government from eDA initiatives.          |
| • The homogeneity of DA product.                                   | • eDA initiative start up costs.                              |
| • Local government size profile.                                   | • Local government take-up of eDA initiatives.                |
| • The relationship between DA applications and building approvals. | • Customer take-up of eDA initiatives.                        |
| • The scope of local government cost and benefit data.             | • The value of industry investment.                           |
| • The DA application profile.                                      | • Industry avoided costs.                                     |
| • Average processing times (savings in approval times).            | • The discount rate.  |
| • Average transaction costs per development application.           | • The timeline for availability of the proposed eDA protocol. |

Some of the most significant assumptions derived from the limited local government data provided were:

- The reduction in the average transaction costs due to eDA, which was estimated to be \$110 per application.
- The reduction in the average processing time for DA applications, which was estimated at 5 days.

The quantum of these variables had a significant influence on the outcome of the modelling.

## Results

The results of this **limited** cost benefit analysis modelling show potentially significant net benefits accruing at a national level to both local government and industry from the implementation of the proposed eDA protocol. These results are shown in Table ES 1 and Table ES - 2. These tables show that:

- For local government nationally, the net discounted benefits are estimated at almost \$39 million over ten years.
- For the three local government strata (Table 12), medium and large local governments can expect significant savings over 10 years (over \$36 million). The savings are less for small local governments (\$2.3 million), reflecting the lower volume of DA applications and the lower take-up rate by these local governments.
- At an individual local government level, local governments across all size strata gain net benefits from the implementation of the eDA initiatives over 10 years, with (not surprisingly) those handling the higher volumes receiving the most savings (\$1.4 million for large local governments).
- For industry the net discounted benefits are even more substantial, estimated at \$141 million over ten years.

**Table ES 1: Summary of estimated net benefits from eDA to local government and industry - by time period**

	Estimated discounted net benefits \$ million			
	Short term	Medium term	Long term	Total
Net benefits to local government	\$1.2	\$12.5	\$27.5	\$38.8
Net benefits to industry – avoided costs	\$2.1	\$21.7	\$39.2	\$62.9
Net benefits to industry – time savings	\$2.1	\$24.8	\$51.2	\$78.1
Total estimated net benefits to industry	\$4.2	\$46.5	\$90.4	\$141.0

**Table ES - 2: Estimated net benefits to local government - by strata**

	Estimated discounted net benefits per local government over 10 years Local government strata			
	Small <1000	Medium 1000 - 2000	Large >2000	Total
Net benefits to local government nationally	\$2.3 million	\$15.4 million	\$20.9 million	\$38.8 million
Net benefits to individual local governments	\$21,599	\$571,817	\$1,401,473	-

These results were based on modelling which estimated that ten years after the introduction of the proposed eDA protocol, some 63 percent of development applications would be lodged electronically, with half of those being handled by large local governments.

As recognised in Section 5.1, these results are based on very limited data and care should be taken in interpreting them. Nevertheless, given the data limitations faced by this study, it is

likely that these estimates understate the potential benefits that may be obtained from the implementation of the proposed eDA protocol.

Other key findings include:

### **Local Government Net Benefits**

- The average large local government will recover their establishment costs in the short term and experience substantial net benefits over the long term (\$1.4 million).
- The average small and medium local government only recovers their establishment costs in the medium term, experiencing negative benefits in the short term.
- There are significant potential **savings** for individual medium and large local governments over the medium and long terms, with the total gross savings for these local governments reaching \$627,000 and \$1,457,000 respectively over a 10 year period.
- With respect to the estimated discounted net benefits to local government nationally of \$39 million over a ten-year period.
  - The national net benefits turn positive for medium and large local governments in the medium term, with substantial discounted net benefits being experienced by the medium and large strata in the medium and long term.
  - Large local governments experience the largest discounted net benefit, attributable to their expected higher take-up rate of eDA initiatives and their higher volumes of DA applications.
  - The total discounted net benefits for small local governments are negative until the long term, reflecting the fact that it takes longer for these local governments to recover their initial outlays due to their relatively low volumes of DA applications.
- Sensitivity analysis of the net discounted benefits to local governments shows:
  - A proportionate sensitivity to changes in eDA take-up rates. That is, a 10 percent increase or decrease in take-up has a similar level of impact on the discounted net benefits in terms of percentage change. For example, if take-up is increased by 10 percent, the national discounted net benefit increases from around \$38 million to over \$42 million, an increase of approximately 9 percent.
  - A medium to high sensitivity to changes in the savings per DA application. In the scenario where the savings are increased by \$40 (from \$110 to \$150) per DA application, small local governments realise a strong positive discounted net benefit within a 10 year period and nationally the discounted net benefits increase by 43 percent to over \$55 million. If the savings are reduced by \$40 (to \$70) per DA application, the most significant impact is on the small local government strata, with total discounted benefits for the strata are reduced by around 106 percent to -\$152,000.
  - A high sensitivity of the results for small local governments to changes in start-up costs, with the discounted net benefits becoming positive for small local governments over a 10 year period if the capital cost is reduced from \$50 000 to \$30 000. In contrast, the benefits for medium and large local governments experience little movement in response to changes in start-up costs. Nationally, the total discounted net benefits increases by around 7 percent to over \$41 million if capital costs for start-up are reduced.
  - A high sensitivity to changes in discount rates. Impacts are most significant for the small local governments in each scenario. If the discount rate is reduced to 7 percent, the national discounted net benefits increase by almost 14 percent to over \$44 million. A 2 percent increase in the discount rate will decrease the national discounted net benefits by almost \$4.5 million or 12 percent.

## Industry Net Benefits

- Industry avoids substantial lodgement costs over the long term, with industry benefiting by between \$56 and \$71 million, depending on the discount rate used. Consistent with the assumed take-up rate profiles, these benefits increase significantly in the medium to long term as increasing numbers of DA applications are submitted via eDA facilities.
  - These avoided costs are moderately sensitive to changes in the assumed savings per DA application. A 10 percent decrease in avoided costs reduces the net benefits to industry by almost \$8 million over 10 years (a 13 percent decrease), whilst a ten percent rise in avoided costs results in an increase in benefits to industry of about \$4 million over ten years (a 7 percent increase).
- The potential benefits to industry from the estimated savings in approval time are substantial over time. These benefits arise from industry's ability to achieve investments earlier than would be the case without the proposed eDA protocol being in place, hence allowing industry to earn a revenue stream on this investment "brought forward".
  - The cumulative industry net benefits range from \$67.5 million to over \$88 million over a 10 year time period. The range results from changes to the discount rate, which also changes the opportunity cost of capital faced by industry (the model assumes that the opportunity cost of capital for industry equals the discount rate).
  - The majority of benefits accrue during the medium to long term, which is largely due to the take-up rates of eDA by local governments and by customers being higher in later years.
  - Changes to the assumed time-saving accruing to industry result in significant differences to the total benefits to industry. A one day change to lapsed time savings from the introduction of eDA initiatives results in changes of plus or minus 20 percent in the savings experienced by industry. Nevertheless, even at a saving of 4 days per application the estimated net benefits to the development industry are significant.



# 1 INTRODUCTION

## 1.1 Purpose

This report examines the potential benefits and costs arising from the proposed introduction of a National Standard Communication Protocol for the electronic exchange of development assessment (DA) information (proposed eDA protocol).

The primary objective of this report is to provide a picture of who may be impacted by the proposed eDA protocol and in what way they might be affected. This information can then be used to assist in building stakeholder support for the proposed protocol and inform the design of the implementation strategy.

Specifically, this report:

- Identifies at a broad level the benefits and costs that will accrue from the proposed eDA protocol to various DA process participants;
- Identifies the business drivers relevant to the proposed eDA protocol; and
- Quantifies selected benefits and costs associated with the introduction of the proposed eDA protocol.

A companion report, titled *Implementation Options for National Standard Communications Protocol for Electronic Development Assessment*, provides a decision framework for the Development Assessment Forum (DAF) to determine the optimum value proposition for the implementation of the proposed eDA protocol.

## 1.2 Background

In a climate where modern computer technology is revolutionising the way in which both governments and the business sector operate, a major goal of DAF is to facilitate the use of modern technology to enable easier and more efficient ways of submitting and processing applications for building and land development.

DAF has identified that a lack of national information standards for the electronic submission of development applications across Australia results in a range of inefficiencies within the DA processes of the States and Territories. These include:

- Inconsistencies in the creation of DA applications and submissions (especially where electronic submissions are beginning to be accepted);
- Additional work for developers, consultants and assessors, especially those operating nationally, through having to print or reproduce hardcopies of electronically maintained plans and documents;
- Confusion for high volume applicants as they must adjust to varying lodgement styles and standards for each local jurisdiction;
- The labour intensive requirement for most assessors to re-key information from manually lodged applications into their core business computer systems;
- Frustration, reduced job satisfaction and high staff turn-over due to the high administrative process load placed on assessing staff; and
- Inefficiencies in the activities of system vendors who create proprietary data standards.

DAF has established the electronic Development Assessment (eDA) Project, which aims to create a National Standard Communication Protocol for transferring DA data electronically.

Following the initial development work on the proposed eDA protocol, DAF commissioned a project to determine:

- The benefits and costs that will flow from the development and implementation of the proposed eDA protocol; and
- The most cost effective and sustainable option for developing, implementing and maintaining the proposed eDA protocol.

This report deals with the former component of the project.

### 1.2.1 What is a Communications Protocol?

A communications protocol is simply a standard for the exchange of data electronically by different computer applications (eg, databases or workflow management applications etc). The form a protocol can take can vary, however eXtensible Markup Language (XML) is rapidly becoming an accepted format for such protocols as it is system independent.

The principal aim of the eDA project is to develop a National Standard Communication Protocol suitable for use between participants (proponents and regulators) in DA processes in all Australian jurisdictions. The proposed eDA protocol is being developed using XML, or similar technology, supported by agreed non-proprietary formats (file types) for submitted plans and documents. The scope of the proposed eDA protocol will cover a wide range of transactions within the DA sphere – including planning, building and plumbing applications as well as other application types (subdivision, landscaping, engineering and so on)<sup>2</sup>.

The focus of the eDA project is to develop a protocol that enables existing electronic information systems and processes to communicate more readily. It will not require Government Agencies to adopt a common set of DA data for development applications and their subsequent processing. Rather, it simply describes a standard structured method for presenting the DA data required by Government Agencies in an electronic format.

Clearly, to be effective the proposed eDA protocol must work with a variety of contemporary and legacy electronic information systems and must be flexible so that it can be extended to other application types at a later stage.

## 1.3 Report Scope

The scope of this report is confined to considering the impact of the proposed eDA protocol on the lodgement of a development application (for planning and building approval) and associated processes for acknowledgements, requests for information, consultation, referral and decisions. Processes involving pre-lodgement, decision review/appeal, DA compliance and feedback to policy makers were out of scope.

For the purposes of this report, the scope of the impacts attributable to the introduction of the proposed eDA protocol includes those arising from electronic development application lodgement and exchange facilities and associated DA related online services. This issue is further discussed in Section 3.2.

Due to limited data availability, time and budget limitations, the scope of the quantitative analysis component of this report focused on selected key impact areas on local government and industry. These areas are described in Section 5.2.

<sup>2</sup> Pers. Comm Adam Heather, Project Manager, DAF eDA Project.

## 1.4 Methodology

The project involved two phases:

### Phase 1

- Determining a Common Elements DA Framework Model and costing model and methodology;

### Phase 2

- Identifying and quantifying the changes in the costs/benefits in selected areas of the Common Elements DA Framework arising from the introduction of the proposed eDA protocol. This is the subject of this report.
- Evaluating appropriate models for the ongoing development, maintenance and support of the proposed eDA protocols. This information, alongside an assessment of the relevant implementation and maintenance issues, project risks and critical success factor metrics, was used to develop an optimum value proposition for the sustainable implementation and maintenance of the proposed eDA protocol. This has been dealt with in the companion report titled *Implementation Options for National Standard Communications Protocol for Electronic Development Assessment*.

The methodology involved in developing this report is described below.

### 1.4.1 Phase 1

**Phase 1** involved developing a Common Elements Model Report that identified:

- The relevant elements of the Common Elements DA Framework Model;
- The stakeholders involved with each element;
- The nature of the benefits and costs to be measured for each element (including opportunity costs); and
- Methods to be used for assessing the benefits and costs.

Compiling that report involved:

- An Internet based literature search.
- Consultation with over forty selected stakeholders using a structured consultation instrument. Those consulted are detailed in Attachment A and include:
  - State Development Assessment Agencies and referral Agencies;
  - Selected local governments;
  - Selected local government peak bodies;
  - Selected development industry peak bodies and practitioners; and
  - Selected software suppliers.
- Developing a draft Common Elements DA Framework Model.

### 1.4.2 Phase 2

Phase 2 involved a second round of consultation with six selected local governments, with and without eDA capability. Consultation was conducted either face to face by visiting the Council or via telephone.



Standard net present value (NPV) benefit cost techniques were used for estimating the benefits and costs associated with introducing the proposed eDA protocol for selected impact areas of the Common Elements DA Framework Model. These benefits and costs generally stem from the increased ability to implement electronic DA data lodgement and exchange and related online services.

For the selected impact areas, benefits and costs were quantitatively described over three time periods:

- Short term (less than 12 months).
- Medium term (12 months to 5 years).
- Long term (greater than 5 years).

The benefits and costs were quantified by assessing the difference between two scenarios:

1. **Baseline scenario** –where a national standard communication protocol for DA data does not exist.
2. **eDA scenario** – where a national standard communication protocol has been implemented.

## 2 COMMON ELEMENTS DA FRAMEWORK MODEL

### 2.1 Data Flow Model

DAF has previously agreed on the common characteristics and components of DA systems in *Agreed Principles of Leading Practice in Development Assessment Processes*.

With reference to these *Agreed Principles* and relevant DAF publications<sup>3</sup>, a draft Common Elements DA Framework Model was developed to represent the DA process. This draft Model was presented to stakeholders during the consultation process. The Model was then refined in light of stakeholder comments and the final Model is illustrated in Diagram 1.

The model illustrates, at a high conceptual level:

- The common elements of the DA process as identified in the *Agreed Principles*. The Model does not include activities related to Appeals or enforcement/compliance as these components of the DA process are outside the scope of this project.
- The key participants in the DA process for each common element.
- The information flows between the key participants.

As can be seen in Diagram 1, the Model covers information flows from the point of the lodgement of a development application to the point where a decision on the application is made and transmitted back to the applicant.

The model is concerned with information flows covering applications for development approvals (DA applications), which can be defined as a formal request for permission to carry out development<sup>4</sup>. It is recognised that some jurisdictions refer to subsets of development applications as Planning Approval and Building Approval. However, for the purposes of the model, development applications do not include building approvals – only applications for the planning components of a development approval.

Definitions of terms used in the Model are contained in Table 1.

**Table 1: Definition of Terms for Common Elements DA Framework Model**

Term	Definition
Applicant	A person or legal entity that submits a development application for approval to undertake a development.
Decision Authority	An authority with the legislative power to issue a development permit. Whilst mostly comprising Local Governments or State Agencies, in some jurisdictions it can include private certifiers for some classes of development application.
Referral Authorities	An authority for which there is a legislative requirement that requires certain development applications to be referred to them for advice, conditions and/or a decision.
Interested/Affected Parties	Persons or organisations that may be potentially interested in or affected by a proposed development application.

<sup>3</sup> Principally the document ‘*State of Play*’ – *Comparison of Planning Systems in Australian States and Territories*, National Office of Local Government, October 1998

<sup>4</sup> This definition has been derived from the definitions of *Development* and *Application* contained in the *Development Assessment Forum Harmonisation Project – Concepts/Scoping Paper*, John Mant for the National Office of Local Government

Term	Definition
Representors	Interested /affected parties that submit a representation to the relevant Decision Authority regarding a Development application.
Facilitators	Persons or organisations who utilise DA data, but who do not have a formal role in the DA process. They can include the Australian Bureau of Statistics, newspaper publishers, state planning agencies, The Commonwealth Government, local government information web portals and so on.
Experts	Persons or organisations that may be consulted by Decision Authorities or Referral Authorities for expert information during the DA process. Includes state agencies that may be consulted for their input, but where there is no formal referral requirement under legislation.

<p><b>Lodgement</b></p>	<pre> graph TD     Applicant[Applicant] -- DA Lodgement --&gt; Authority[Relevant Decision Authority]     Authority -- Lodgement Receipt --&gt; Applicant     Applicant -- Further information --&gt; Authority     Authority -- Initial Assessment --&gt; Assessment{Initial Assessment}     Authority -- Request further information --&gt; Applicant         </pre>
<p><b>Notification / Consultation</b></p>	<pre> graph TD     Applicant[Applicant] -- Notification / Consultation --&gt; ThirdParties[Third Parties]     subgraph ThirdPartiesBox [Third Parties]         Representors[Representors]         Interested[Interested or Affected Parties]         Facilitators[Facilitators (websites, newspapers, noticeboards, etc)]     end     Authority[Relevant Decision Authority] -- Acknowledgement --&gt; Representors     ThirdPartiesBox -- Issues Raised --&gt; Authority     Authority -- Decision/Conditions --&gt; Referral[Referral Authorities (legislative reference)]     Authority -- Referral --&gt; Referral     Referral -- Request further information --&gt; Applicant     Referral -- Further information --&gt; Applicant     Authority -- Request for advice --&gt; Experts[Experts (non-legislative reference)]     Experts -- Advice provided --&gt; Authority         </pre> <p><b>Note:</b> In Queensland responsibility for notification/consultation with third parties or referral authorities lies with the Applicant, not the Decision Authority.</p>
<p><b>Assessment</b></p>	<pre> graph TD     Applicant[Applicant] -- Resolution of issues --&gt; Representors[Representors]     Applicant -- Resolution of issues --&gt; Authority[Relevant Decision Authority]         </pre>
<p><b>Decision Making</b></p>	<pre> graph TD     Authority[Relevant Decision Authority] -- Notification of decision and conditions --&gt; Applicant[Applicant]     Authority -- Notification of decision and conditions --&gt; Interested[Interested or Affected Parties]     Authority -- Notification of decision and conditions --&gt; Representors[Representors]     Authority -- Notification of decision and conditions --&gt; Referral[Referral Authorities (legislative reference)]         </pre>

Based on consultation responses, it is apparent that data flows between participants in the DA processes are predominately hard-copy based (faxes are considered hard copy data flows), with few examples of significant electronic exchange of DA data.

Within individual organisations, the nature of data flows varies, with larger organisations such as Decision Authorities increasingly utilizing electronic document management systems (EDMSs) for managing workflows and sharing DA data. While in some cases EDMSs dealing with DA data will be separate from other EDMSs dealing with other data, increasingly

organisations are moving to integrated systems, dealing with DA data, property data, rates data and so on. This either requires a holistic software applications or, more commonly, integrated suits of applications that can exchange data. At the other end of the spectrum, smaller organisations often simply have hard copy based systems, perhaps with an electronic records management system.



## 3 POTENTIAL IMPACT OF eDA protocol

### 3.1 Comparable Projects

Benefit cost analysis is an accepted tool for assisting in making decisions on business cases for a wide range of projects, including information communications technology projects. Nevertheless, an Internet based literature search revealed that this project appears to be unique in attempting to estimate the benefits and costs arising from the introduction of a standard communications protocol. No other project that involved such an approach could be identified.

A number of studies were located that undertook a benefit cost approach to determining whether to proceed with information and communication technology (ICT) system developments, upgrades or redevelopments. These are listed in Table 2

However, these studies were all focussed on a single software application or a suite of applications for a single client or organisation, not an underlying communications protocol that could be utilised by a broad range of users.

**Table 2: Benefit Cost Studies Regarding ICT Projects**

Name of Study	URL
ebXML Case Study: XML in Ontario (XiO)	<a href="http://www.ebxml.org/">http://www.ebxml.org/</a>
ebXML Case Study: LomakeFi – Registry-based Environment for Assembling XML Schemas and Electronic Forms for the Finnish Government	<a href="http://www.republica.fi/lomake/ebXML_CaseStudy_eGovForms.doc">http://www.republica.fi/lomake/ebXML_CaseStudy_eGovForms.doc</a>
ebMS Streamlines Invoicing and Reconciliation Process	<a href="http://www.ebxml.org/">http://www.ebxml.org/</a>

At a more generic level, there surprisingly appears to be little empirical research available on the benefits to be gained from implementing standards, either in the information technology world or elsewhere. Most of the literature on the benefits of using standards relies on assumed axioms or qualitative or anecdotal evidence. One empirical study that has been undertaken was an analysis of the economic benefits of standardisation, published by the DIN German Institute for Standardization. This study

*.....came to some clear conclusions:*

*Standards have a positive influence on innovation, much as patents do, but the efficient dissemination of new technical knowledge via standards is a decisive factor and a precondition for economic growth.*

*.....*

*Overall, the conclusion was that in the countries studied – Germany, Austria and Switzerland – the economic benefits of standardization were about 1 percent of the gross national product. Just as importantly, positive macroeconomic effects far exceeded the sum of individual benefits for the economy.*

*Global Reach, Global Acceptance, Global Success; International Electrotechnical Commission, 2003*

While not directly comparable to the task being undertaken by DAF, at the broader level the National Office for the Information Economy (NOIE) recently undertook a major study into the benefits of e-Government. This study looked at the benefits to government of using the Internet and Internet related technologies to deliver Government services online. It involved both qualitative and quantitative surveys regarding the benefits of e-government, including detailed survey responses from 39 Commonwealth government agencies covering e-government programs in greater depth.

This study found that<sup>5</sup>:

- Australians have a history of early adoption of new technologies. Forty-six per cent of people and over 57 per cent of businesses now make use of e-government services and demand is expected to grow by more than 30 per cent per annum.
- E-government initiatives bring significant social benefits and cost savings for customers, with
  - Eighty (80) per cent of people surveyed saying e-government had provided them with a moderate or significant social benefit.
  - At least forty five (45) per cent of respondents indicating they had saved money by using e-government. Ten (10) per cent of people, and twenty three (23) per cent of businesses and intermediaries said they had saved more than \$25 per transaction.
  - Agencies realizing cost savings through speedier transactions and lower staff costs. The extrapolated saving to the Commonwealth Government of the programs studied was estimated at around \$450 million.
- Determining the benefit/cost ratio for e-government is not straightforward, as the outcomes and benefits include social outcomes as well as financial ones.
- It can be difficult to estimate the financial benefits, let alone the social benefits and the lack of appropriate measurement tools provide challenges for government agencies. In many cases agencies have not been able to quantify current program costs and benefits before new approaches are initiated, making it difficult to establish a baseline for later comparisons.

The results of this study clearly indicate that moves to facilitate greater use of e-government services can bring benefits to both consumers and government bodies, but that the estimation of the benefits and costs involved is problematic.

Accordingly, the literature search was of limited use in helping to formulate the approach to quantifying the benefits and costs that will arise from the proposed eDA Protocol.

## 3.2 Expected Impact of the Proposed Protocol

As identified in Section 1.3, the impact of the introduction of the proposed eDA protocol extends to those arising from electronic development application lodgement and exchange facilities and associated DA related online services.

The current exchange of DA data between participants in the DA process has traditionally been via hardcopy format (including facsimile), but there has been an increasing trend towards establishing means of electronically transferring this data.

Currently no National Standard Communication Protocol exists. Where electronic transfer between participants is desired, currently those participants must establish electronic communication protocols that are unique to their respective processes, computer systems and information databases before they can electronically exchange DA data. These protocols can often be costly to establish and maintain, particularly in a rapidly changing technological environment. The individual and often proprietary nature of such data standards itself can act as an inhibitor to the electronic exchange of DA data.

In contrast, the principal impact of the availability of a national standard eDA protocol will be to enable different databases and software applications that deal with DA data to more readily and easily be able to exchange data without the need to establish unique data exchange

<sup>5</sup> *E-Government Benefits Study*, National Office for the Information Economy and DMR Consulting, April 2003



protocols. This would make it easier and cheaper for those involved in the DA process to exchange data via electronic means than would otherwise be the case.

Importantly, the impact of the proposed eDA protocol will be pivotal in enabling the widespread development and implementation of eDA lodgement and exchange facilities that would otherwise not be developed.

The most immediate benefits and costs that can be related to the proposed eDA protocol are those associated with electronic lodgement and exchange facilities. In addition, experience in other areas of e-Government and e-Commerce suggest that moves towards these types of online service developments is also likely to influence the development of a range of other electronic services relating to planning that are:

- Not currently possible or feasible in the absence of the proposed eDA protocol;
- Uneconomic to provide unless associated with the implementation of eDA lodgement and exchange facilities; or
- Necessary to meet heightened customer expectations arising from the introduction of eDA lodgement and exchange facilities.

For example, this could include developments to facilitate online the notification, display and public comment of DA data (including plans) or the provision of online facilities to enable applicants to track a DA application through the approval system.

These types of opportunities are less directly related to the introduction of a standard eDA protocol, but are an important component of the customer service delivery environment that becomes possible once eDA becomes widespread. They result in “flow-on” benefits and costs that arguably would not have occurred in the absence of the proposed eDA protocol.

### 3.3 Potential Benefits And Costs Arising from Proposed eDA Protocol

Consultation indicated a range of potential benefits and costs that are likely to arise following the implementation of the proposed eDA protocol.

Table 3 and Table 4 illustrate the nature of these benefits and costs and to which class of DA process participants they fall.

It is readily apparent from these tables that:

- The major benefits flowing from the implementation of the proposed eDA protocol are:
  - Avoided costs for industry and Decision Authorities, such as reduced costs associated with interactions between clients and Decision authorities, lodgement, data entry, publishing costs, administration, filing and archiving and so on.
  - Opportunity costs for industry associated with reductions in the time taken to receive a decision on a DA transaction.
- The major costs involved are establishment costs associated with incorporating the proposed eDA protocol in local government/vendor software and potential increased printing costs for some participants to the extent that they require hard copies during the assessment process. These latter costs can simply be cost transfers between applicants, Decision Authorities, Referral Agencies and Experts and as such will probably be reflected in application charges. It is important to note that the total printing costs are likely to be reduced, as hardcopies will be produced on an “as needed” basis not on a “set number of copies” basis.

**Table 3: Benefit Matrix**

Model Component	Description	Type of impact	Parties Affected					
			Decision Authorities	Referral Agencies	Applicants	Interested Parties	Facilitators	Experts
<b>General</b>								
Start-up	Reduced costs of developing individual protocols for data transfer between systems	Avoided Cost	✓	✓	✓		✓	✓
	Reduced costs of developing/amending/upgrading applications that can readily exchange data with other applications (e-lodgement facilities, electronic document management systems, workflow management systems etc)	Avoided Cost	✓	✓	✓		✓	✓
On-going Maintenance	Reduced costs of maintaining individual protocols for data transfer between systems	Avoided Cost	✓	✓	✓		✓	✓
	Reduced costs in adapting information systems and lodgement procedures and/or forms to process or information changes, particularly legislative changes, such as the introduction of new planning legislation.	Avoided Cost	✓	✓	✓		✓	✓
Other	Improved transparency and accountability of Development Assessment system	Intangible	✓	✓	✓	✓	✓	✓
	Reduced cost of collecting nationally consistent data on the DA system.	Avoided cost	✓	✓			✓	
<b>Lodgement</b>								
	Improved ability for applicants to access lodgement and related services through internet availability 24 hours a day seven days a week.	Intangible			✓			

Model Component	Description	Type of impact	Parties Affected					
			Decision Authorities	Referral Agencies	Applicants	Interested Parties	Facilitators	Experts
	Reduced lodgement costs through ability to use e-lodgement facilities: <ul style="list-style-type: none"> <li>Reduced printing costs for applicants</li> <li>Reduced attendance costs</li> <li>Reduced postal charges</li> </ul>	Avoided cost			✓			
	Reduced data entry costs (manual, scanning etc)	Avoided cost	✓	✓			✓	✓
	Reduced administrative costs through: <ul style="list-style-type: none"> <li>Replacement of processes for handling hardcopy documents (photocopying, filing, postage, etc);</li> <li>Reduction in the volume of over-the-counter transaction.</li> </ul>	Avoided cost	✓	✓				
	Reduced processing time (i.e. faster movement of data between points in the approval process, but no change in assessment time)	Opportunity cost	✓	✓	✓			✓
	Improved DA data quality and consistency through data standards imposed by eDA protocol	Intangible	✓	✓	✓	✓	✓	✓
	Reduced cost of exchanging data with other DA system participants.	Avoided cost	✓		✓			
<b>Notification/ Consultation</b>								
	Reduced cost of publishing DA data online	Avoided cost	✓	✓			✓	
	Reduced data entry costs (manual, scanning etc)	Avoided cost	✓	✓			✓	✓

Model Component	Description	Type of impact	Parties Affected					
			Decision Authorities	Referral Agencies	Applicants	Interested Parties	Facilitators	Experts
	Reduced administrative costs through: <ul style="list-style-type: none"> <li>Reduced costs of handling hardcopy documents (photocopying, filing, postage, etc);</li> <li>Reduced volume of over-the-counter transactions.</li> <li>Reduced costs for transferring DA data between participants in DA process</li> </ul>	Avoided cost	✓	✓			✓	✓
	Reduced processing time (i.e. faster movement of data between points in the approval process, but no change in assessment time)	Opportunity cost	✓	✓	✓			✓
	Reduced costs of monitoring DA application progress	Avoided cost			✓			
	Improved DA data quality and consistency through data standards imposed by eDA protocol	Intangible	✓	✓	✓	✓	✓	✓
	Reduced cost of exchanging data with other DA system participants.	Avoided cost	✓	✓	✓	✓	✓	✓
<b>Assessment</b>								
	Reduced administrative costs through: <ul style="list-style-type: none"> <li>Reduced costs of handling hardcopy documents (photocopying, filing, postage, etc);</li> <li>Reduction in the volume of over-the-counter transaction.</li> </ul>	Avoided cost	✓	✓				
	Improved DA data quality and consistency through data standards imposed by eDA protocol	Intangible	✓	✓	✓	✓	✓	✓

Model Component	Description	Type of impact	Parties Affected					
			Decision Authorities	Referral Agencies	Applicants	Interested Parties	Facilitators	Experts
	Reduced costs of monitoring/reporting on DA application progress	Avoided cost	✓	✓	✓			✓
	Reduced cost of exchanging data with other DA system participants.	Avoided cost	✓	✓	✓			
<b>Decision Making</b>								
	Reduced administrative costs through: <ul style="list-style-type: none"> <li>Reduced costs of handling hardcopy documents (photocopying, filing, postage, etc);</li> <li>Reduction in the volume of over-the-counter transaction.</li> </ul>	Avoided cost	✓					
	Reduced archiving and storage costs (operational and capital costs).	Avoided cost	✓	✓	✓			✓
	Reduced costs of monitoring/reporting on DA application progress	Avoided cost	✓	✓	✓			✓
	Improved DA data quality and consistency through data standards imposed by eDA protocol	Intangible	✓	✓	✓	✓	✓	✓
	Reduced cost of exchanging data with other DA system participants.	Avoided cost	✓	✓	✓	✓		✓

**Table 4: Cost Matrix**

Model Component	Description	Type of impact						
			Decision Authorities	Referral Agencies	Applicants	Interested Parties	Facilitators	Experts
<b>Establishment</b>								
Start -up costs	Costs associated with the development and operation of e-lodgement facilities	Direct cost	✓	✓	✓		✓	✓
	Costs of additional hardware and peripherals such as printers, if required.	Direct cost	✓	✓				
	Costs of amendments to existing software	Direct cost	✓	✓	✓			
	Costs associated with the establishment the protocol.	Direct cost						
	Costs of marketing and increasing awareness of the eDA protocol	Direct cost						
	Costs associated with business process re-engineering related to the implementation of e-lodgement and related facilities.	Direct cost	✓	✓	✓			
	Costs associated with bandwidth upgrades and/or increased data transfers	Direct cost	✓	✓	✓	✓	✓	✓
Maintenance and operational costs	Costs associated with the management, review, amendment and maintenance of the eDA protocol	Direct cost						
	Initial marketing costs associated with the introduction of e-lodgement and related facilities	Direct cost	✓	✓	✓			

Model Component	Description	Type of impact						
			Decision Authorities	Referral Agencies	Applicants	Interested Parties	Facilitators	Experts
	Increased cost of training due to: <ul style="list-style-type: none"> <li>• Introduction of new hardware and peripheral devices;</li> <li>• New business processes which arise from business process reengineering exercises;</li> <li>• The introduction of e-lodgement facilities.</li> </ul>	Direct cost	✓	✓	✓			
<b>Lodgement</b>								
	Increased printing costs <ul style="list-style-type: none"> <li>• Hardcopy documents may be required</li> </ul>	Direct cost	✓	✓				✓
<b>Notification/ Consultation</b>								
	Increased printing costs <ul style="list-style-type: none"> <li>• Hardcopy documents may be required</li> </ul>	Direct cost	✓	✓				✓
	Increased administrative costs arising from increased public participation in the DA process (for example, improved access to DA data may result in increase objections etc)	Direct cost	✓	✓				
<b>Assessment</b>								
	Increased printing costs <ul style="list-style-type: none"> <li>• Hardcopy documents may be required</li> </ul>	Direct cost	✓	✓				✓
<b>Decision Making</b>								
	Increased electronic archiving costs	Direct cost	✓	✓				✓





## 4 DRIVERS AND BARRIERS

At a broad level, the major determinants of the extent of the benefits accruing to DA stakeholders include:

- The rate at which DA process participants, primarily (but not exclusively) local government, implement eDA initiatives and facilities. This in turn will be related to their pressing business needs, the potential financial savings involved, their willingness to use technology and the Internet as a means of customer service delivery and their level of information technology capability.
- The rates of customer take-up of eDA facilities where they are introduced. For occasional developers this is likely to be slow. Much greater take-up rates are likely to be experienced for industry professionals, who are responsible for the lodgement of the vast majority of development applications.
- Changes in the information technology capabilities of local government. Local government is traditionally slow to upgrade its technology and to move to web based customer services. Nonetheless, significant work with local government, mainly by local government peak bodies, has been undertaken in recent years in most jurisdictions to improve their capabilities and their usage of the Internet as an alternative customer delivery channel.

Nevertheless, there are a range of other issues that can also encourage or impede the realisation of benefits and costs. During consultations, stakeholders identified a range of drivers that assist in realising the benefits associated with implementing the proposed eDA protocol. They also identified some barriers that will inhibit the realisation of these benefits.

These are discussed briefly below.

### 4.1.1 Drivers

#### Development industry expectations

The development industry (including government) already has a high level of knowledge with respect to benefits that can arise from moving to the electronic management of data exchange and has a high take up rate of new technology. A prime example is the way the industry has embraced the electronic management of spatial data.

This familiarity with the benefits that technology can bring is likely to result in significant take-up rates for those stakeholders that will directly benefit from the electronic lodgement or exchange of data.

#### Local government moves to improved client service

A number of the local governments consulted that had already introduced e-lodgement stated that cost was not a major consideration, as they considered that it was a necessary step to take to improve services to their community. This is consistent with a range of initiatives at a local government level to develop and adopt the Internet as a customer service delivery channel.

#### Demand for interoperability

The use of information technology systems and the diversity of systems that are used by Commonwealth, state and local government has increased the pressure to contain costs through achieving interoperability between systems. Interoperability provides flexibility in information management and allows integrated systems to be developed on a modular basis.

In this environment, many local governments and state agencies are seeking standard approaches to the exchange of information, indicating support for the development and use of

standard communication protocols. Not only does this lead to improved interoperability, it also gives those organisations greater choice between vendors by reducing the reliance on a single application vendor.

### **Increasing complexity of planning systems and processes**

Approvals processes and planning instruments are becoming increasingly complex leading to costly time delays in gaining approval. For example, many Local Environment Plans in NSW run into over 500 pages. Local governments, state agencies and in particular the DA industry are seeking a reduction in these time delays and complexities. In this context, some DA participants see eDA initiatives, particularly in the pre-lodgement and lodgement areas, as an important way of improving the transparency of the DA system.

### **Online provision of other services**

There is an increasing expectation and acceptance within the general community and the business sector of online service delivery, with significant recognition and realisation of the benefits such services can provide. All jurisdictions are currently pursuing, with varying degrees of enthusiasm, strategies to encourage and promote online services. Many larger local governments have or are delivering services such as payments, rate notices, dog registration and planning inquiries online and in some States (for example, Tasmania) local government peak bodies are facilitating significant moves to the provision of online services.

As electronic lodgement of other government services increases, the development industry is likely to demand similar services from relevant Decision Authorities regarding DA data.

### **Industry demands for consistency**

Industry has long been critical of differing requirements between jurisdictional DA systems. While industry's focus has generally been on differing regulatory requirements, its concerns also extend to differing information requirements for development applications both within and between jurisdictions. This is driven by the fact that a significant proportion of businesses operate across local government and state jurisdictional boundaries.

Accordingly, demands from industry for more inter-jurisdictional consistency places pressure on governments and decision authorities to adopt consistent approaches to development application information requirements.

### **Competitive Advantage**

The implementation of the proposed eDA protocol will remove a significant impediment to interoperability between competing software developers and vendors that are currently supporting DA system participants in the information and communications technology market. In this environment, the desire to maintain competitive advantage will provide a strong incentive for all developers and vendors to quickly embrace the proposed eDA protocol, or risk being left in the wake of their competitors.

### **High volumes of development applications**

While no official figures are available for the numbers of development applications lodged, anecdotal evidence from consultations conducted with local governments and State Agencies indicates that a comparatively small number of local governments receive the majority of development applications. For example, in Queensland the 20 largest local governments account for approximately 90% of all development applications received state-wide<sup>6</sup>. In NSW the top 40 local governments received (approximately) in excess of 80% of the State's development applications<sup>7</sup>.

<sup>6</sup> Pers. Comm. Mr Graeme Ballard, Department of Planning and Local Government.

<sup>7</sup> Pers. Comm. Mr Neil Cox, Department of Infrastructure, Planning and Natural Resources.

Both the numbers of building approvals and population are considered reasonable indicators of the level of development applications lodged. In this respect:

- ABS Building Approvals figures for 2001-2003 indicate that 8% of local governments are responsible for over half of all building approvals.
- The Australian Classification of Local Government (ACLG) 2001-2002<sup>8</sup> showed that seventy seven (77) percent of local governments were classified as having populations less than 30,000 persons and only six (6) percent of local governments (forty in total) had populations in excess of 120,000.

Whilst the potential benefits and costs of the introduction of a standard eDA protocol will also be experienced by smaller local governments, it is likely that the bulk of the benefits, particularly in the short to medium term, will accrue to larger local governments with higher volumes of development applications. These local governments can be expected to have the economies of scale to justify using systems that facilitate electronic lodgement or exchange of DA data and to realise the benefits that eDA will bring.

### **Integrated electronic data/document management systems (EDMSs)**

Many organisations at both State and Local Government levels are moving to implement EDMS to manage their document, data and workflows. Such systems provide enhanced abilities for organisations to track the documents through DA processes, measure the performance of those processes and, importantly, to increase access to documents and information. This last impact has had important benefits for approval processes in general as it facilitates the major re-engineering of business processes, allowing many activities to be undertaken concurrently, rather than sequentially.

The trend towards EDMSs greatly enhances the potential benefits accruing from a standard eDA protocol and the electronic lodgement and exchange of DA data. Specifically, EDMSs provide the means by which Decision Authorities and other stakeholders in the DA process can hold, enhance or manipulate DA data. Decisions to implement EDMSs in the DA area are likely to be influenced by the need to be able to manage DA within statutory timeframes, by pressures to reduce the costs of decision processes and by the need to maintain easily accessible accurate property records.

## **4.1.2 Barriers**

### **Low volumes of development applications**

Analysing ABS Building Approvals data indicates that the vast majority of local governments account for less than half of all applications approved. From an analysis of the 2002-2003 approvals data, 365 or 59% of local governments approved less than 100 Building Applications per annum.

Although an eDA protocol is likely to make the introduction of eDA capability cheaper for all local governments regardless of size, the low volumes of development applications received by smaller local governments may not warrant the introduction of eDA. This is largely due to the cost of procuring suitable specialist software or the inability of small local governments to afford the necessary information technology infrastructure. Nevertheless, the economics of introducing eDA initiatives for smaller local governments may change if:

- eDA functionality is added to widely used off-the-shelf software packages designed for local

<sup>8</sup> 2001-02 *Report on the Operation of the Local Government (Financial Assistance) Act 1995*, National Office of Local Government, Appendix F - Australian Classification of Local Governments

government activities;

- The eDA functionality can be used to cover other related approvals (building, plumbing, engineering and so on); and/or
- Commercial registry style services are developed that can offer e-lodgement services at low cost to local government/applicants.

In some States (for example, Tasmania) this barrier can be partly overcome through existing initiatives by local government peak bodies to provide online services for local governments. In the longer run, it can be expected that commercial “portal” or “registry” style services may develop that will also facilitate electronic lodgement by smaller local governments. Nevertheless, the lack of sophistication of local government information technology infrastructure remains a significant issue. This is a general issue for local government and not confined to eDA initiatives.

## Security Implications

The Information Technology divisions of local governments are traditionally conservative regarding allowing access to their internal back-office systems, primarily due to security concerns. This attitude is likely to slow the uptake of eDA initiatives by local government in its formative stages. This is a general issue for local government and not confined to eDA initiatives.

## Cultural barriers

The development industry and the development assessment process applied by Decision Authorities has traditionally been undertaken using hard copy data (applications, plans etc.). During consultation, a number of Decision Authority respondents stated that they would still need to print out documents, particularly plans, in hard copy, as it was too difficult to view large complex proposals on standard computer screens.

Importantly, the observation of one of the local governments consulted that has been operating with eDA is that, whilst initially cultural barriers meant that assessors printed out documents in hard copy during the assessment phase, over time this tendency was significantly reduced. This was because the majority of development applications are relatively straightforward and simple and assessment was possible on-screen.

## Legislative barriers and authentication requirements

A number of stakeholders indicated that legislative and authentication requirements regarding lodgement could prevent moves to electronic lodgement of DA data. These requirements can include applicant authentication requirements and third party signature requirements. This is consistent with the findings of a report completed in 1998 for the Victorian Government<sup>9</sup> regarding the barriers to making State and Local Government licence applications available online through the Victorian online Business Channel. That report found that such legislative and authentication requirements were a major impediment to the provision of online applications.

Dealing with applicant authentication is a common issue with the establishment of government online transactions and has parallels with the widespread introduction of facsimile machines and the need for governments to accept documents by facsimile instead of hard copy. The development of sustainable authentication processes requires a business-based approach that looks at the legislative requirements and business risks associated with an online transaction (compared to existing transaction authentication requirements). Nevertheless, while applicant authentication can be a difficult business issue, it is eminently solvable. NOIE has examined

<sup>9</sup> *Victorian Licence Profiling Project*, Stenning & Associates Pty Ltd for Small Business Victoria, 1998

authentication issues and provided some directions for government managers on how to deal with this issue<sup>10</sup>.

Furthermore, the introduction of nationally consistent Electronic Transactions legislation in all Australian jurisdictions has mitigated to some degree the legislative impediments to applicant authentication. Nevertheless, the need by some DA systems for third party signatures presents challenges that need to be overcome, perhaps through the concurrent use of alternative technologies – for example, scanning or facsimiles.

### Legacy Systems

Management of electronic lodgement of development applications and the internal transfer of DA data requires an effective integrated data management system. Some respondents indicated that Decision Authorities could in some cases face significant upgrades to their data management systems to facilitate electronic lodgement or data exchange.

Advice received from vendors indicates that this may not be a significant problem provided that the range of data residing on legacy systems is largely consistent with that contained within the proposed eDA schema (which is expected to be the case). From a technical perspective, the construction of an XML import/export facility for existing systems should not be a complex, nor costly task.

### Ongoing Management Requirements

To be effective, the proposed eDA protocol will need to be managed and maintained on an ongoing basis. Whilst there are a number of models for achieving this, they all require resources and funding. Difficulties associated with implementing such management and maintenance requirements have the potential to impede the implementation of the proposed eDA protocol.

### Reluctance to use alternative standards

Some respondents indicated that some Decision Authorities might be reluctant to use an alternative communications protocol to that which they may have already developed. Given that there are few of such protocols in existence and the nature of the data exchange opportunities that will arise with the implementation of the proposed eDA protocol, this is not considered to be a major impediment. As discussed in section 5.4.16, a window of opportunity exists for the proposed eDA protocol to have maximum impact, beyond this period the potential benefits are likely to diminish as can be assumed that without a standard protocol individual proprietary protocols will be developed.

<sup>10</sup> *Online Authentication - A guide for Government Managers*, National Office for the Information Economy, July 2002



## 5 APPROACH FOR ESTIMATING BENEFITS AND COSTS

Due to time constraints, data availability issues and budget limitations, the scope of estimating the benefits and costs associated with the introduction of the eDA protocol focussed on quantifying key impact areas on local government and industry. This was done by collecting cost data and processing time data for two scenarios:

**Baseline scenario:** This is where a national standard communication protocol for DA data does not exist. This does not imply that there is no electronic lodgement of development applications, exchange of DA data or associated online services. Rather, any existing initiatives in that area have not been facilitated by a national eDA standard.

In the context of this project it was not meaningful to quantify the benefits of data transfers in the baseline scenario, as they are simply a component of a larger DA system largely defined by legislation. Further, quantifying such benefits was beyond the scope of this project, as they largely relate to the benefits arising from the control of land use.

**eDA scenario:** This is where the proposed eDA protocol has been implemented and is being maintained. Importantly, this scenario confines itself to quantifying the direct benefits and costs (or the first round effects) associated with the protocol. It does not deal with indirect (or second order) benefits and costs.

The benefits and costs associated with moving from the baseline to the eDA scenario were then calculated for selected impact areas indicated in Section 5.2.

The critical features of the approach used to estimate the costs and benefits are discussed below.

### 5.1 Data Issues

The collection of benefit and cost data provided a number of challenges due to the problematic nature of quantitative data availability. Specifically:

- Consultation during Phase 1 indicated that there was little readily available quantitative data on the costs involved in the processing of development applications under neither the baseline or eDA scenarios, nor the benefits involved in moving to the eDA scenario. Few of the jurisdictions, local governments and software suppliers contacted had meaningful quantitative data on which to establish the baseline scenario. For those local governments that had undertaken eDA initiatives, their business cases (where it was most appropriate to expect such data to be present) generally dealt with benefits and costs at a qualitative level.
- No data exists with respect to the number of DA applications lodged with decision authorities on a national basis, and only a few states collect meaningful data on the number of DA applications received and processing times.
- The project budget did not extend to the collection of statistically significant cost data from local governments.
- National statistical data collections did not contain sufficiently detailed relevant cost data that could be used in the analysis as a substitute for local governments specific data.

- Development Applications were limited to Planning and Building Applications (this issued is discussed in further detail in section 5.3.1).

Following discussions with the Project Steering Committee, an alternative process was agreed to try to overcome this data problem. This involved collecting data from a maximum of up to six local governments to provide a broadly indicative quantification of benefits and costs in those areas of the Common Elements DA Framework Model where the impacts of the proposed eDA protocol are concentrated. This data was sought through a data collection instrument that sought targeted quantitative data concerning the identified data flows.

The six local governments were a mix of those with eDA initiatives in place and those who have not. They were:

Penrith City Council (NSW)	Has eDA initiatives in place
Pittwater Council (NSW)	Has just implemented eDA initiatives
Mundaring Shire Council (WA)	Does not have eDA initiatives in place but is considering eDA initiatives
City of Whittlesea (Victoria)	Has eDA initiatives in place
Hobart City Council (Tasmania)	Does not have eDA initiatives in place, but interested in moving in that direction
City of Mackay (Queensland)	Does not have eDA initiatives in place

This approach has imposed some significant limitations on the quality of the data and, hence, the results arising from the model. These include

- The results are based on very limited data and no firm conclusions can be drawn on how representative this data is of local governments nationally. Not all of the selected local governments were able to provide the requested data and, in a number of cases, the data that was provided required manipulation in order for it to be used in model.
- The limited nature of the data meant that only a single cost per development application transaction was calculated for local governments and then applied across different local government size strata. It is likely that there would be some differences in the cost per transaction between these strata, with some economies of scale being experienced by larger local governments.
- There is a reasonable degree of confidence in the quality of the data provided for the baseline scenario, as data from different sized local governments was relatively comparable. However, while those local governments with eDA experience that were consulted had reasonable qualitative data on their eDA experiences, they did not have detailed supporting quantitative data. Accordingly, the data provided for the eDA scenario was considered less reliable as an indicator of expected local government experience.

To overcome these data problems, a number of critical assumptions were made. These are detailed in Section 5.4.

Accordingly, the results of this study should be treated with some caution and considered only indicative of the likely impact of the development and implementation of the proposed eDA protocol. A broader scale data collection exercise across local government may result in more precise outcomes. Such an exercise is likely to be costly, as from experience the best results will be achieved by visiting local governments to obtain the data. However, it will not result in significantly improved data for the eDA scenario simply due to the lack of local government experience in this area.



## 5.2 Impact Areas Examined

The following impact areas were selected for analysis. These were identified in Phase 1 as the areas where the main benefits and costs associated with the introduction of the proposed eDA protocol were likely to be broadly centred.

### **Lodgement Phase**

- Costs to Decision Authorities of establishing electronic lodgement and related online services for development applications.
- Benefits to Decision Authorities of receiving DA applications electronically (rather than hard copy).
- Benefits to industry associated with the availability of electronic lodgement, including reduction in time taken to process DA applications.

### **Notification/Consultation Phase**

- Costs to Decision Authorities due to the need to print their own hardcopies of plans etc.

### **All Components**

- Benefits to Decision Authorities in terms of other avoided costs due to the adoption of eDA initiatives.
- Benefits to industry of the reduction in time taken to process DA applications.

## 5.3 Estimation Model

The estimation model used standard Net Present Value (NPV) benefit cost analysis to calculate for selected impact areas the benefits and costs to local governments and industry associated with introducing the proposed national eDA protocol.

The following methods were used to develop the costs and benefits. The key assumptions used by these methods are set out in Section 5.4.

### 5.3.1 Local government benefits

The benefits to local government were derived by estimating the costs avoided by the move to the eDA scenario. This involved:

- Data from the local governments involved was manipulated, pooled and used to calculate an average cost per development application for the two scenarios. While it was originally anticipated that the model would utilize different average transaction costs for different local government sizes (small, medium and large), there was insufficient data for this to be achieved.
- ABS Building Approval data, combined with appropriate assumptions, was used to derive an average number of development application per annum for three strata of local government size. The strata area based upon the number of building approvals per annum.
- The total cost of development applications for each local government size stratum for each scenario was calculated by multiplying the average cost per development application by the average number of development applications per annum for each stratum.
- Assumptions about the growth rate of development applications were derived from a trend

analysis of ABS Building Approvals data. These assumptions were then used to develop the forecasts of the numbers of development applications over a ten-year period (encompassing the short, medium and long term) for the different local government strata.

- Assumptions regarding the take-up rate by local governments of eDA type initiatives and the take-up (i.e., usage) rate of such initiatives by customers where they are provided were then applied and the difference in the costs of the two scenarios was calculated. This difference was then discounted to net present value terms to provide an indication of the extent of the benefits experienced by the average local government in each local government stratum through a move to the eDA scenario.
- The average net benefit per local government for each local government strata was then multiplied by the estimated number of local governments in that stratum and then summed to gain the national net benefits arising from the move to eDA. Again, the results are expressed in net present value terms.

### 5.3.2 Industry

Industry benefits from the introduction of the proposed eDA protocol primarily arise in two areas:

- Reductions in the processing time for development applications (i.e., receiving decisions on approvals sooner); and
- Avoided costs related to the lodgement and monitoring of development applications.

Due to a lack of data from industry, the estimate of the latter benefit was undertaken using assumed figures for industry savings associated with lodging a development application only.

The former benefit was calculated by estimating the additional revenue to industry arising from the time savings experienced by industry, such revenue being the earnings on investment brought forward due to the time savings. The following methodology was applied to calculate this benefit.

- It was assumed that the marginal cost of time for industry is the opportunity cost in terms of the expected rate of return on capital. That is, the benefit is the additional return to capital earned by being able to undertake the development sooner.
- The total value of building approvals multiplied by the proportion of development applications expected to be lodged electronically gave the proportion of investment benefiting from the time saved due to the use of eDA.
- A rate of return on capital was applied to this proportion of investment, with appropriate adjustments to reflect the revenue earnings for that proportion over the time saved per development application. This provided an estimate of the additional revenue that would accrue to industry. The rate of return on capital was set equal to the discount rate applied (i.e., the rate of return equals industry's rate of time preference). For the purposes of this calculation, it was assumed that development applications were received uniformly over a year. Similarly, it was assumed that the value of building approvals was spread evenly over a year.
- Net present value analysis was applied to estimate the present value of the expected net benefits to industry.

## 5.4 Key Assumptions

### 5.4.1 Elasticity of demand for DA transactions

The demand for DA transactions is a derived demand, stemming from a primary demand for property investment. To simplify the analysis, it was assumed that the demand for DA transactions is inelastic. That is, a move to the eDA scenario in itself will not impact on the demand for DA transactions. Of course, this can understate the benefits that may arise from moving to the eDA scenario, as such a move may influence the demand for DA transactions from two perspectives.

- Moving to the eDA scenario will reduce the cost of a DA transaction to industry, thereby reducing the cost of property investment. Such reductions could be expected to increase the demand for property investment. However, this effect is likely to be small as the magnitude of the cost savings to industry are likely to be small in terms of the overall cost of property development.
- It is possible that the reduction in DA transaction approval times that can arise from the move to the eDA scenario may increase the demand for DA approvals, as the property investment market may perceive this as a change in the “convenience” factor associated with property investment. That is, shorter approval times may prompt additional consumers to enter the property development market. Again, it is considered that this effect is likely to be small.

### 5.4.2 Homogeneity of DA product

Conventional cost benefit analysis assumes that the product that is subject of the analysis is homogenous (in this case, the demand for development applications). At a broad level this is true for the development assessment process, however at a more detailed level there are clearly differences in the scope of the DA systems between the various jurisdictions. These differences were ignored for the purposes of the study and it was assumed that development applications were homogenous across jurisdictions.

### 5.4.3 Local government size profile

Local governments were separated into three separate strata, high, medium and low. These strata are based upon ABS Building Approvals data. The strata are as follows.

High	Local governments that approve in excess of 2000 building applications per annum.
Medium	Local governments that approve between 1000-2000 building applications per annum.
Low	Local governments that approve less than 1000 building applications per annum.

Table 5 provides an estimate of the number of local governments and volumes of building approvals within each stratum. This analysis was based upon ABS Building Approvals data for 2002/2003 (the most recently available data).

Table 5: Building Approvals Data summary - 2002-03

Strata #s of Building approvals	Total number of local governments	Total number of building approvals per stratum	Percentage of total Australian building approvals	Average number of approvals per stratum	Average value of building approvals per stratum
>2000	18	57 851	27%	3214	\$226,562
1000-2000	41	55 378	26%	1351	\$242,792
<1000	603	100 097	47%	166	\$232,570
<b>Total</b>	<b>662</b>	<b>213 326</b>	<b>-</b>	<b>-</b>	<b>-</b>

Source: *Building Approval Australia*, Cat. No 8731.0, Australian Bureau of Statistics, 2003

#### 5.4.4 Relationship between DA applications and building approvals

The ABS (nor any other central bodies or agencies) does not collect data on the number of DA applications lodged with decision authorities. The ABS does, however, collect data on the number of building approvals on a national basis.

To estimate the number of DA applications, research was conducted into the relationship between the number of building approvals granted and the number of DA applications lodged. Drawing a relationship proved problematic, however, as some individual states have differing requirements for the types of uses and activities that require development approval. Further, the scope of building approval statistics does not cover all building approvals, as the ABS definition of a building approval only includes those that involve activities above a certain value, as illustrated below.

*The collection [of building approval data] is a census of all approved building jobs above the value limits outlined below and comprises the following activities:*

- construction of new buildings;
- alterations and additions to existing buildings;
- approved non-structural renovation and refurbishment work;
- approved installation of integral building fixtures.

*From July 1990 the statistics include:*

- All approved residential building jobs (new and alterations and additions) valued at \$10,000 or more;
- All approved non-residential building jobs (new and alterations and additions) valued at \$50,000 or more.<sup>11</sup>

Consultation with the six selected local governments and other enquiries of stakeholders lead to the conclusion that, as a rough “rule of thumb”, building approvals represent approximately 65% of all DA applications lodged with approval agencies. This relationship is likely to differ across states for the reasons stated above, however it is considered that this relationship is broadly representative of the national situation.

In making this assumption, a DA application was defined as an application for planning or building approval, as these types of applications are consistent across all jurisdictions.

<sup>11</sup> Data Source for Building Approvals, ABS website,  
<http://www.abs.gov.au/Ausstats/abs@.nsf/lookupME/87B01636C9BFA9EACA256BD000282607>.

It was noted that there are a range of other application types that could potentially be included under the banner of DA applications. However, these other application types are not consistent across all jurisdictions (for example, some jurisdictions do not require separate applications for plumbing, landscaping or other similar types of uses) or potentially involve significantly different business processes and hence costs and benefits. For these reasons they were excluded from the definition of a DA application.

#### **5.4.5 Scope of local government cost and benefit data**

One data limitation was that the cost and benefit data collected from Councils was concerned only development (planning) applications. However, the definition of a DA application included both planning and building approval types. Accordingly, for the purposes of the estimation model it was assumed that the cost and benefits associated with the introduction of the proposed eDA protocol were similar for both planning and building approvals. That is, the cost and benefit data for planning approvals was applied to the total estimated number of DA applications (both planning and building) received nationally. It was not considered feasible to further extrapolate these costs to other approval types due to the different business processes involved and hence different levels of costs and benefits that may be experienced.

It should be noted that this assumption is likely to underestimate the net benefits resulting from the introduction of an eDA protocol. Many local governments receive large numbers of applications for other types of developments not considered in the model (such as landscaping, engineering and plumbing). To the extent that the proposed protocol allows eDA initiatives to extend to other types of development applications, local government will derive additional benefits that may be significant.

It was also noted that local governments also deal with significant numbers of what can be termed “informal” DA transactions (usually relating to compliance with conditions of approval). Although such transactions could potentially be submitted in electronic format facilitated by the proposed eDA protocol, they were outside the scope of the project.

#### **5.4.6 DA application profile**

It was assumed that on average 90% of all DA applications received (whether they were residential and non-residential) do not require public consultation. This assumption is based upon responses during consultation with local government and industry that indicated that the vast majority of DA applications received were for developments that did not require public consultation<sup>12</sup>.

It was also assumed that the number of DA applications nationally remained constant. This was based on an analysis of ABS building approval data, which indicated that the number of building approvals over the past ten years averaged approximately 180,000, with a standard deviation of 224.

#### **5.4.7 Average processing times (savings in approval times)**

eDA initiatives are in their infancy and the data collected concerning costs incurred under the eDA scenario has only covered a short timeframe and low volumes of development applications. For these reasons, the projected gains in approval times and savings in processing

<sup>12</sup> It is also relevant to note that ABS Building Approval Statistics for 2001-03 showed that 91% of all approvals were for residential and 9% were non-residential.

costs can only be taken as being broadly indicative. Local governments piloting eDA initiatives indicated that some efficiencies have been realised in terms of turn around time for requests for further information and advised that applicants have commented that lodgement time has been reduced.

The level of savings in approval times (i.e., the elapsed time from the lodgement of a development application to when the decision authority advises of its decision) experienced by industry as a result of the introduction of the protocol and subsequent eDA initiatives has a substantial influence on the overall benefits at both a local government and national level.

The initial estimates for these time-savings were based on the data provided by one eDA local government only, as the others provided qualitative data only. This analysis indicated that the elapsed approval time was reduced by approximately 5 days (that is, 19 percent of the elapsed approval time) following implementation of eDA<sup>13</sup>.

It was assumed that:

- The development assessment process timeframes themselves remained unchanged (e.g., introducing an eDA initiative did not reduce the time taken by planners to assess an application); and
- The primary time-savings arose from efficiencies gained in the movement of data between participants (such as occurs at lodgement and when requests for further information are submitted to applicants).

Using this data, the number of days saved in lapsed time as a result of the introduction of eDA was then calculated on a national basis. This was done per council strata and over the short, medium and long term and included adjustments for the assumptions on take up rates for local government and for customers.

## 5.4.8 Average transaction costs per development application

Analysis of available data indicated that the average transaction cost per development application for the two scenarios was:

<b>Average Transaction Cost - Baseline</b>	\$570
<b>Average Transaction Cost - eDA</b>	\$459
<b>Reduction in average transaction cost per development application</b>	\$110

The average transaction cost for both the baseline and eDA scenarios includes variable on-costs associated with employment. When calculating the average transaction cost, these variable on-costs (such as superannuation, workers compensation insurance, etc) were assumed to add an extra 60 percent of the labour cost data provided by local governments. It should be noted that this calculated average transaction cost does not include local government fixed overhead costs nor some variable costs for which data was not supplied by the selected local governments.

While this estimated benefit was based upon very limited data, it was considered to be a reasonable and conservative estimate and, hence, was used as the base transaction cost in the model.

<sup>13</sup> Data from three local governments was used to calculate the average lapsed time for the baseline scenario.

## 5.4.9 Benefits to local government from eDA initiatives

No data was available to allow any distinction to be drawn on the different benefits that may arise from different forms of eDA initiatives. Accordingly the modelling was based on a single benefit arising from an eDA initiative based on data provided by one of the local governments contacted that had implemented such an initiative. The scope of that initiative covered electronic lodgement of development applications and online application tracking of those applications.

To the extent that local governments implement eDA initiatives with a greater scope of functionality, the benefits to them are likely to be greater than that estimated by this study. For example, an initiative that also includes the ability to view DA applications and associated documents (plans etc) online will return greater savings (both to local government and industry). Conversely, the benefits to be gained from a simple development application lodgement facility can be expected to be less than one which incorporates pre-lodgement information, DA application tracking and online viewing of DA applications.

## 5.4.10 eDA initiative start up costs

The identification of likely eDA start up costs was challenging. Local governments already delivering eDA services were generally unable to provide specific details of the costs of initiatives as these costs had been rolled up in larger scale local government IT projects (either within or across local governments). Further, information provided by software vendors was minimal, with some vendors being reluctant to divulge figures due to commercial-in-confidence issues. Discussions with local governments and other key bodies indicated that local governments are likely to use vendor-provided software products for the provision and delivery of eDA services, therefore start up costs have been assumed to be minimal. One software vendor indicated that eDA functionality was most likely to be delivered to local governments as part of the regular upgrade of existing vendor-provided products that have already been implemented.

Furthermore, many of the initial technical changes necessary to facilitate an eDA initiative can be re-used as that initiative is extended to other uses (for example, extending electronic lodgement to plumbing applications). Accordingly, the technical costs involved in establishing eDA initiatives are not necessarily incurred again each time a new eDA initiative is implemented.

For the purpose of this analysis the following assumptions have been made:

- Local governments are likely to use vendor-provided software products to enable eDA capabilities. The additional costs of facilitating eDA with these products are likely to be relatively low. Local governments with existing vendor products are likely to gain eDA capability through the bundling of eDA functionality into existing upgrade arrangements for their current software.
- Decisions by local governments to purchase a specialized property EDMS are not included, as costs attributable to facilitating eDA capability, as it is assumed that such decisions are made on a broader business need basis.
- Start-up costs of \$50 000 have been assumed for the establishment of eDA initiatives that lever off vendor provided software. .
- Software suppliers will require local governments to pay an additional annual licence to cover software support and upgrades for the eDA component of their software products. This ongoing licence cost has been set at \$1500 per annum.

The following costs were excluded from the analysis due to a lack of data:

- Costs associated with the acquisition and ongoing maintenance of any hardware and peripherals necessary to implement eDA initiatives.
- Costs associated with the initial system setup and implementation, including staff training costs. These costs will vary depending on local government size and the internal IT capabilities of the local government.
- Costs borne by the applicant – for example, annual fees associated with the creation and maintenance of digital signatures<sup>14</sup> and other forms of authentication.

#### 5.4.11 Local government take-up of eDA initiatives

Table 6 details the assumptions made regarding the likely rate at which local governments would adopt eDA initiatives.

**Table 6: Local Government take-up rate profile for eDA initiatives**

Volume of DA transactions per annum	eDA initiative take-up rate		
	Short Term	Medium Term	Long Term
Greater than or equal to 2000	50 %	80 %	100 %
Greater than or equal to 1000, but less than 2000	40 %	65 %	80 %
Less than 1000	15 %	20 %	25 %

During the consultation process it was apparent that a significant proportion of large local governments are already planning the implementation of eDA initiatives or examining their introduction in the near future. Many of these local governments have scheduled eDA as part of a move to provide their services online. However, it is also apparent that for the vast majority of local governments eDA is not yet on their radar screen for implementation.

For those local governments already planning or examining the implementation of eDA initiatives, it is assumed that the proposed eDA protocol will make it easier for them to introduce eDA, thereby bringing forward its introduction.

This take-up profile has been based on:

- Feed back from software vendors;
- Reference to the Rogers’ “theory of innovation diffusion”<sup>15</sup>; and
- Consideration of the likely business benefits to local governments arising from implementing eDA initiatives.

This take-up profile will see all high volume local governments implementing eDA in the long term, but with a slightly lower take-up rate for medium volume local governments (80 percent) and a significantly lower take-up rate for smaller local governments. This is consistent with the expectation that local governments that process large volumes of development applications will

<sup>14</sup> The SPEAR project in Victoria has indicated that this is a \$200 once-off cost. This cost has not been incorporated in the analysis as it is not yet clear that digital certificates will be the preferred method of client authentication adopted by local governments.

<sup>15</sup> There is a wealth of information on this theory on the Internet – see, for example, [www.gsu.edu/~wwittr/docs/diffusion/](http://www.gsu.edu/~wwittr/docs/diffusion/)



gain the greatest benefit from the introduction of eDA and hence are most likely to introduce eDA initiatives.

The relatively low take-up rate for local governments that receive low volumes of building applications<sup>16</sup> reflects a conservative assumption that there may be low incentives (e.g. insufficient economies of scale within the DA process) for local governments within this stratum to make the introduction of electronic development application lodgement cost effective. Further, many local governments in these strata are not likely to have sufficient resources (human or financial) to enable the introduction of eDA initiatives. It is recognised that this assumption could understate the impact of the proposed eDA protocol to the extent that the development of off-the-shelf applications with low implementation costs makes the widespread implementation of eDA initiatives by local governments in this stratum financially attractive.

It is noted that the percentage of local governments adopting eDA initiatives may be increased if a centralised e-lodgement system is introduced either on a statewide or regional basis to reduce the resource burden upon small local governments. No estimation of the costs or benefits of introducing such a system was undertaken.

From a practical perspective, the actual take-up rate by local governments of the proposed eDA protocol is likely to be influenced by a number of factors including:

- Promotion during implementation.  
The promotion of the proposed eDA protocol to local governments will be a necessary part of its implementation. In this respect, the level of resources allocated to implementation and promotion can significantly influence take up.
- Demand from the development industry.  
Once a local government has introduced an eDA which proves beneficial to customers it is likely that customers (development industry) will demand that other local governments introduce similar systems. This will particularly be the case for neighbouring local governments as the majority of developers operate across municipal boundaries.
- Compatibility with existing systems.  
The degree of data compatibility of the proposed eDA protocol with existing local government systems will greatly reduce the resource implications for local government and hence the costs of eDA implementation.
- Take-up by progressive local governments.  
Progressive local governments that introduce eDA initiatives are likely to have a competitive advantage over neighbouring local governments. As can be seen with the introduction of other electronic services within local government, other local governments are likely to follow suit in an attempt to nullify this competitive advantage.
- Available resources within local government.  
The Planning Institute of Australia's recently released report<sup>17</sup> into the shortage of planning professionals in Australia highlighted a shortage of development assessment officers within local government. This shortage, combined with an increase in development in many local government areas, has resulted in a situation in many planning departments where limited resources are available to introduce new systems and assessment processes. This can both slow the take-up rate of local government (i.e., resources are limited for implementation) or

<sup>16</sup> An analysis of the 2002-2003 ABS Building Approvals data indicates that 70% of Council approved less than 200 building applications. It is, therefore, not unrealistic to assume that there will be a low take up rate for this stratum. However this take up rate is unlikely to be experienced equally by Councils within this stratum as Councils with higher numbers of approvals (closer to 1000) may take up eDA more readily than those with lower numbers of approvals.

<sup>17</sup> *National Inquiry into Planning Education and Employment*, Planning Institute of Australia, February 2004

alternatively speed implementation as local government seeks more efficient ways of undertaking business.

- Local government cultural issues.

The culture within local government planning departments will be a major determinate of uptake as these departments have responsibility for the business processes affected by eDA. In most cases these departments will be the ones with responsibility for implementation of eDA initiatives.

#### 5.4.12 Customer take-up of eDA initiatives

Table 7 details the customer take-up rate assumptions that were used.

**Table 7: Customer take-up rate profile**

Customer segment	Proportion of Total Applications	Short term (<12 months)	Medium Term (1-5 years)	Long Term (> 5 years)
Industry Professionals	80%	20%	60%	80%
Occasional Developers	20%	2.5%	10%	15%

The definitions used in this assumption are:

Proportion of Total Applications	Proportion of total development applications lodged by customer segment (regardless of lodgement method).
Industry Professionals	Persons who regularly prepare and lodge development applications on their own behalf or on behalf of clients (for a fee).
Occasional Developers	Individuals and small businesses who are first time or infrequent developers

In arriving at this take-up profile the following assumptions were made:

- Industry professionals are generally highly ICT literate and a large proportion of them have broadband access to the Internet.
- Occasional developers are relatively less ICT literate and only a low-moderate proportion of them have access to the Internet.
- eDA type initiatives tend to involve relatively complex online transactions (i.e., can include provision of information, provision of data, provision of electronic files, payments etc). This can slow the take-up rate, particularly by occasional developers.
- The proportion of total applications in each customer segment remains constant in the baseline and the eDA scenarios. Nevertheless, an eDA protocol combined with improved online information, intelligently interrogatable planning provisions and other online processes has the potential to make it easier for occasional developers to lodge DAs without professional advice.

In determining the take-up profile, regard was had to the following:

- Anecdotal information from local governments consulted indicates that industry professionals handle about eighty (80) percent of all DA applications. This is supported by advice from the UK Planning Portal that indicates an estimated “80% of planning applications and appeals are completed by agents on behalf of applicants”<sup>18</sup>.
- Little relevant information could be located on likely customer take-up rates for this type of online transaction. Many of the services for which there is information are less complex than the development application situation.

Clearly, a range of factors can influence customer take-up rates. Some of these factors include:

- The extent of advertising and promotion of eDA facilities.

<sup>18</sup> Email from Mr Richard Goodwins, Director, UK Planning Portal

- The ease of use of eDA facilities.
- Any actions by local governments to encourage people to use eDA facilities, including:
  - Requiring development applications to be submitted online, or
  - Any financial or performance incentives to lodge online (either direct benefits offered by local government, such as lower application fees or indirectly through guarantees of faster processing of online applications).

While this report makes no implicit assumptions regarding these influences, they will be important issues for DA participants to consider when implementing eDA initiatives.

### 5.4.13 Value of industry investment

Due to lack of available data on a national basis on the value of industry development arising from development applications, the model assumes that the value of building approvals is a reasonable proxy for the value of industry investment.

A linear regression analysis was undertaken on the previous ten years of Australian building approvals values<sup>19</sup> to estimate the value of building approvals for the next ten years. This assumption is likely to represent a significant proportion of the national value of investment undertaken by the development industry, however it underestimates the total value of investment as it excludes expenditure associated with subdivision and infrastructure development activities, for example, roadworks, engineering works etc.

### 5.4.14 Industry avoided costs

No data was readily available on the financial savings accruing to development applicants as a result of using eDA lodgement and associated facilities. Nevertheless, savings will occur through a range of avoided costs, such as printing and postage costs and the staff time incurred in preparing and lodging the application. Furthermore, online development application tracking facilities are likely to significantly reduce the staff costs involved in monitoring the progress of development applications.

It is understood that the SPEAR project in Victoria have calculated (as part of its business benefits realisation project) that moving to the electronic lodgement of subdivision plans could potentially save an \$60 per development application<sup>20</sup> in avoided costs (postage, printing etc) associated with lodgement. This estimate does not include savings in staff time due to the availability of online lodgement facilities.

It was considered that it was not appropriate to extrapolate this level of savings to industry generally, as subdivision applications form a relatively small proportion of development applications lodged. Further, it would be expected that the average savings from residential applications would be less than for commercial applications.

For the purposes of the report, it was assumed that industry experienced savings of \$75 and \$150 per residential and commercial development application respectively<sup>21</sup>.

### 5.4.15 Discount rate

A benefit cost analysis approach compares all costs and benefits associated with a proposal, regardless of who bears those costs and benefits or the time period over which they are

<sup>19</sup> *Building Approvals Australia*, Australian Bureau of Statistics, Cat 8731.0

<sup>20</sup> Pers. Comm. Melissa Harris, Victorian Department of Sustainability and the Environment

<sup>21</sup> This includes labour, printing and postage costs

accrued. To achieve this, the comparison must convert quantitative costs and benefits to constant dollar terms. A discount rate is applied to achieve this conversion.

#### **Why use a discount rate?**

The need [for a conversion to constant dollar terms using a discount rate] arises from the simple observation that the value of a dollar received today is not the same as that of a dollar received at some time in the future.

There are three major reasons for this difference:

**The ‘rate of time preference’.** Most people prefer consumption undertaken now rather than later. Thus, a dollar available now is more highly valued than one received later.

**Uncertainty.** There is necessarily some degree of uncertainty as to whether a future dollar will actually be received. Its value is lessened in proportion to the expected size of this uncertainty factor.

**Inflation.** The effect of inflation is that a dollar is able to buy fewer goods in the future than at present. (NB This aspect can be ignored if all elements of the cost benefit analysis are being undertaken in real (i.e. inflation adjusted) rather than nominal (i.e. actual dollar) terms.

The discount rate seeks to capture the sum of the above factors. The discount rate is the rate at which the dollar is held to lose value as the time at which it is to be received becomes more distant.

**Source:** *Regulatory Impact Statement Handbook*, Victorian Office of Regulation Reform (undated)

As the primary role of this benefit cost analysis is to illustrate the benefits and costs incurred by the various stakeholders, it is appropriate to use a discount rate that reflects the cost of capital for those stakeholders. For simplicity, we have used a nominal discount rate of 9 percent as the median<sup>22</sup>, whilst testing for sensitivity using rates of 7 and 11 percent.

### **5.4.16 Timeline for availability of the proposed eDA protocol**

This report assumes that the timing of the availability of the proposed eDA protocol does not affect the likely benefits that arise. In reality, there is a window of opportunity for the proposed eDA protocol to have the maximum impact. Beyond that window, the potential benefits accruing to stakeholders from the protocol may diminish, as it is likely that DA process participants and/or software vendors will, in the absence of an agreed standard national protocol, develop their own communication protocols in the future, with a default protocol emerging over the long term.

Specifically, consultations with software vendors indicated that a number believe many of the main metropolitan local governments are likely to implement eDA protocols in the short to near medium term (i.e., next 18 months). There is some doubt about the validity of this belief, as traditionally local government has been slow to adopt the Internet as an alternative customer service delivery channel. In addition, development applications will be relatively complex transactions to undertake online and hence local governments may be reluctant to proceed with online transactions at this early stage of their online strategy.

Nevertheless, it is reasonable to assume that the potential benefits from the proposed protocol will be reduced the longer it takes to develop and implement the proposed eDA protocol.

<sup>22</sup> The average indicator lending rate for large business over the past 10 years is 8.9 percent – Source: *Reserve Bank of Australia F05 Indicator Lending Rates*, [www.rba.gov.au/Statistics/Bulletin/F05hist.xls](http://www.rba.gov.au/Statistics/Bulletin/F05hist.xls).

## 5.5 Estimation Model Details Summary

The following tables summarise the key assumptions and primary formulae applied in the quantitative assessment of the benefits and costs. The outcomes of this assessment are presented in Section 6.

The formula codes are used in Section 6 to indicate the nature of the calculations contained in the results tables. It should be noted that the same formula code may relate to several results tables, with each table effectively representing a different view of the results (eg, by local government strata or by time period).

**Table 8: Key Assumptions**

Assumption	Code	Value
Volume of Local Governments	vLG	Refer to Table 5
Volume of DA Applications -Nationally	vDA	Refer to Table 5
Take-up Rate – Local Governments	TRLG	Refer to Table 6
Take-up Rate – Customers	TRC	Refer to Table 7
Discount Rate	DR	9 percent
Capital Costs (Implementation of eDA)	CC	\$50,000
eDA Maintenance Costs	eDAM	\$1500 per annum
Baseline Transaction Cost	BTC	\$570
eDA Transaction Cost	eDATC	\$460
Average Savings per DA	AveS	\$110
Baseline Average Processing Time (Lapsed Time)	BAPT	27 days <sup>23</sup>
eDA Average Processing Time (Lapsed Time)	eDAAPT	22 days <sup>24</sup>
Industry Lodgement Savings – Residential	ILSR	\$75 per DA application
Industry lodgement Savings – Non-Residential	ILSNR	\$150 per DA application
Proportion of DA applications – Residential	PDAR	90 percent
Proportion of DA applications – Non-Residential	PDANR	10 percent
Value of Building Approvals Nationally	VBA <sub>N</sub>	A trend estimate was derived from ABS Building Approvals data over the past 9 years

**Table 9: Primary Model Formulae**

Formula Name	Code	Formulae
Discount Factor (year i)	DF <sub>i</sub>	$= 1 / (1 + DR)^{\text{year}}$
Average Savings Per DA	AveS	$= BTC - eDATC$
Volume of DAs submitted via eDA per local government	veDA <sub>lg</sub>	$= vDA_{lg} * TRC$
Volume of DAs submitted via eDA	veDA <sub>N</sub>	$= vDA_{lg} * vLG * TRLG$

<sup>23</sup> The calculated lapsed time for processing DAs under the baseline scenario is a weighted average of the data supplied by the selected local governments regarding the lapsed time for processing applications requiring consultation and applications not requiring consultation.

<sup>24</sup> The calculated lapsed time for processing DAs under the eDA scenario is a weighted average of the data supplied by the selected local governments regarding lapsed time for processing applications requiring consultation and applications not requiring consultation.

Formula Name	Code	Formulae
nationally		
Proportion of DAs submitted via eDA nationally	PrDA <sub>N</sub>	= veDA <sub>N</sub> /vDA
Average Savings in Processing Times Per DA	AveT	= BAPT - eDAAPT
Average Savings in Processing Times Per Local Government	AveT <sub>lg</sub>	=(TRC*AveT)*(vDA/vLG)
Savings in Approval Times – Industry	SATI	=(veDA <sub>N</sub> /vDA)*(AveS/365)
Benefit Per Local Government	B <sub>lg</sub>	=AveS*veDA <sub>lg</sub>
Costs per Local Government	C <sub>lg</sub>	=CC+eDAM
Net Benefits per Local Government	NetB <sub>lg</sub>	= B <sub>lg</sub> - C <sub>lg</sub>
Net Present Value of Total Savings in Processing Times to Local Government Nationally	T <sup>*</sup> T <sub>NPV</sub>	=Σ <sub>1-10</sub> [AveT <sub>lg</sub> *DF <sub>i</sub> ]
Net Present Value of Net Benefit Per Local Government	NetB <sub>NPV</sub>	=Σ <sub>1-10</sub> [NetB <sub>lg</sub> *DF <sub>i</sub> ]
National Benefits to Local Government	NatB <sub>lg</sub>	=NetB <sub>lg</sub> *vLG
Net Present Value of National Benefits to Local Government	NatB <sub>NPV</sub>	=Σ <sub>1-10</sub> [NatB <sub>lg</sub> * DF <sub>i</sub> ]
Industry Avoided Costs	InAC	=veDA <sub>N</sub> *((ILSR*PDAR)+(ILSNR*PDANR))
Net Present Value of Industry Avoided Costs	InAC <sub>NPV</sub>	=Σ <sub>1-10</sub> [InAC <sub>i</sub> * DF <sub>i</sub> ]
Industry Opportunity Cost of Time Savings	InOC	=VBA <sub>N</sub> * SATI
Net Present Value of Industry Opportunity Cost of Time Savings	InOC <sub>NPV</sub>	=Σ <sub>1-10</sub> [InOC <sub>i</sub> * DF <sub>i</sub> ]

## 6 RESULTS – ESTIMATED BENEFITS AND COSTS

This section outlines the results of the quantitative assessment of the benefits and costs associated with the selected impact areas. In all cases, the estimated results cover a 10 year period.

### 6.1 Usage of eDA

Using the assumed rates for the adoption of eDA initiatives by local government plus customer take-up of the use of eDA initiatives, Table 10 illustrates the expected growth in the number and proportions of development applications lodged with local government. This shows that ten years following the introduction of the proposed eDA protocol, some 63 percent of development applications could be lodged electronically, with half of those being handled by local governments with over 1000 development applications per annum.

**Table 10: Estimated numbers and proportions of development applications lodged electronically under eDA scenario** (Formula Code: veDA<sub>N</sub> and PrDA<sub>N</sub>)

Year	No. of development applications submitted via eDA				Percentage of total development applications submitted via eDA			
	Council Size				Council Size			
	Small	Medium	Large	Total DAs sub'tted via eDA	Small	Medium	Large	Total DAs sub'tted via eDA
1	1270	10 164	12 705	24 139	0.4%	3.1%	3.9%	7.4%
2	2873	17 717	22 026	42 616	0.9%	5.4%	6.7%	13.0%
3	5120	26 882	33 282	65 284	1.6%	8.2%	10.1%	19.9%
4	8013	37 659	46 473	92 145	2.4%	11.5%	14.2%	28.1%
5	11 550	50 049	61 598	123 196	3.5%	15.2%	18.8%	37.5%
6	13 157	55 919	69 076	138 152	4.0%	17.0%	21.0%	42.1%
7	14 870	62 103	76 973	153 946	4.5%	18.9%	23.5%	46.9%
8	16 687	68 602	85 289	170 578	5.1%	20.9%	26.0%	52.0%
9	18 609	75 415	94 023	188 047	5.7%	23.0%	28.6%	57.3%
10	20 635	82 542	103 177	206 354	6.3%	25.2%	31.4%	62.9%

### 6.2 Overall Benefits and Costs

The results of this **limited** cost benefit analysis modelling show potentially significant net benefits accruing at a national level to both local government and industry from the implementation of the proposed eDA protocol.

- For local government nationally, the net discounted benefits are estimated at almost \$39 million over ten years.
- For the three local government strata (Table 12), the strata that deals with more than 1000



development applications per annum can expect significant savings over 10 years (over \$36 million). The savings are less for the strata that handles less than 1000 development applications (\$2.3 million), reflecting the lower volume of DA applications and the lower take-up rate by local governments in this stratum.

- At an individual local government level, local governments across all strata gain net benefits from the implementation of the eDA initiatives over 10 years, with (not surprisingly) those handling the higher volumes receiving the most savings (\$1.4 million for local governments handling more than 2000 DA applications per annum).
- For industry the net discounted benefits are even more substantial, estimated at \$141 million over ten years.

**Table 11: Summary of estimated net benefits from eDA to local government and industry - by time period**

	Estimated discounted net benefits \$ million			
	Short term	Medium term	Long term	Total
<b>Net benefits to local government</b> (Formula Code: NatB <sub>NPV</sub> )	\$1.2	\$12.5	\$27.5	\$38.8
<b>Net benefits to industry – avoided costs</b> (Formula Code: InAC <sub>NPV</sub> )	\$2.1	\$21.7	\$39.2	\$62.9
<b>Net benefits to industry – time savings</b> (Formula Code: InOC <sub>NPV</sub> )	\$2.1	\$24.8	\$51.2	\$78.1
<b>Total estimated net benefits to industry</b>	\$4.2	\$46.5	\$90.4	\$141.0

**Table 12: Estimated net benefits to local government - by strata**

	Estimated discounted net benefits per local government over 10 years Local government strata \$			
	Small <1000	Medium 1000 - 2000	Large >2000	Total
<b>Net benefits to local government nationally</b> (Formula Code: NatB <sub>NPV</sub> )	\$2.3 million	\$15.4 million	\$20.9 million	\$38.8 million
<b>Net benefits to individual local governments</b> (Formula Code: NetB <sub>NPV</sub> )	\$21,599	\$571,817	\$1,401,473	-

The following sections present these results in more detail.

## 6.3 Local Government Benefits

Table 13 indicates the estimated net benefits per local government in each local government strata over the short, medium and long term arising from the implementation of the proposed eDA protocol and the subsequent move to eDA initiatives. It shows that:

- The average local government with more than 2000 DA applications per annum will recover their establishment costs in the short term and experience substantial net benefits

over the long term (\$1.4 million).

- The average local government with 2000 or less DA applications per annum only recovers their establishment costs in the medium term, experiencing negative benefits in the short term.

**Table 13: Estimated net discounted benefits per local government** (Formula Code: NetB<sub>NPV</sub>)

	Estimated discounted net benefits per local government		
	Local government strata		
	Small <1000	Medium 1000 - 2000	Large >2000
Short term	-\$42,995	-\$12,647	\$35,086
Medium term	\$26,049	\$243,769	\$586,197
Long term	\$38,545	\$340,695	\$780,191
Total estimated benefits over 10 years	\$21,599	\$571,817	\$1,401,473

Table 14 shows the estimated discounted **gross savings** per local government strata over the three time periods. This indicates significant potential savings for individual medium and large local governments over the medium and long terms, with the total gross savings for these local governments reaching \$627,000 and \$1,457,000 respectively over a 10 year period.

**Table 14: Net discounted gross savings per local government strata** (Formula Code: TT<sub>NPV</sub>)

	Estimated discounted net savings per local government		
	Local government strata		
Year	Small <1000	Medium 1000 - 2000	Large >2000
Short Term	\$4,252	\$34,601	\$82,333
Medium Term	\$30,507	\$248,227	\$590,655
Long Term	\$42,337	\$344,487	\$783,983
NPV of Total Savings	\$77,097	\$627,315	\$1,456,971

Table 15 shows the estimated benefits to local government nationally for each local government strata over the three time periods. It illustrates that the total discounted net benefits nationally are in the order of \$39 million over a ten-year period. The results indicate that net benefits turn positive for local government in the medium and large strata in the medium term, with substantial discounted net benefits being experienced by the medium and large strata in the medium and long term. The large local governments experience the largest discounted net benefit, attributable to their expected higher take-up rate of eDA initiatives and their higher volumes of DA applications.

The discounted net benefits for the small local government strata are negative until the long term, reflecting the fact that it takes longer for local governments in that stratum to recover their initial outlays due to their relatively low volumes of DA applications.

**Table 15: Estimated benefits to local government nationally** (Formula Code: NatBNPV)

	Estimated discounted net benefits per local government nationally			
	Local government strata			
	Small <1000	Medium 1000 - 2000	Large >2000	Total
Short term	-\$1,296,307	-\$207,404	\$ 315,770	\$1,187,941
Medium term	-\$156,496	\$5,381,620	\$7,244,034	\$12,469,158
Long term	\$ 3,795,211	\$10,266,669	\$13,445,859	\$27,507,739
Total estimated benefits over 10 years	\$2,342,408	\$15,440,885	\$21,005,663	\$38,788,957

Attachment B contains a series of tables that illustrate more detailed estimated results for the individual local government strata.

The net discounted benefits for local government will vary according to the values of a range of key variables. Accordingly, the sensitivity of the national results was calculated for the variables shown in Table 16.

**Table 16: Variables subject to sensitivity analysis**

Variable	Scenarios	Description
eDA take-up rates	Low	Medium reduced by 10 percent
	Medium	
	High	Medium increased by 10 percent
Savings per development application	Low	\$70 per development application
	Medium	\$110 per development application
	High	\$150 per development application
Start up costs for eDA initiatives	Low	\$30 000
	Medium	\$50 000
	High	\$100 000
Discount rate	Low	7 percent
	Medium	9 percent
	High	11 percent

The tables below illustrate varying degrees of sensitivity to positive or negative changes to key variables. In most scenarios, the greatest impact was shown to be on the small local government strata.

Table 17 suggests a proportionate sensitivity to changes in eDA take-up rates. That is, a 10 percent increase or decrease in take-up has a similar level of impact on the discounted net benefits in terms of percentage change. For example, if take-up is increased by 10 percent, the national discounted net benefit increases from around \$38 million to over \$42 million, an increase of approximately 9 percent.

**Table 17: Sensitivity of estimated benefits to local government nationally to changes in eDA take-up rates**

	Estimated discounted net benefits to local government nationally			
	Local government strata			
	Small <1000	Medium 1000 - 2000	Large >2000	Total
<b>Low (less 10 percent)</b>	\$2,108,167	\$13,896,797	\$18,905,097	\$34,910,061
<b>Medium</b>	\$2,342,408	\$15,440,885	\$20,925,040	\$38,708,333
<b>High (plus 10 percent)</b>	\$2,576,649	\$16,984,974	\$23,147,822	\$ 42,709,445

As shown in Table 18, the results have a medium to high sensitivity to changes in the savings per DA application. In the scenario where the savings are increased to \$150 per DA application, small local governments realise a strong positive discounted net benefit within a 10 year period and nationally the discounted net benefits increase by 43 percent to over \$55 million. If the savings are reduced to \$70 per DA application, the most significant impact is on the small local government strata, with total discounted benefits for the strata are reduced by around 106 percent to -\$152,000.

**Table 18: Sensitivity of estimated benefits to local government nationally to changes in savings per development application**

	Estimated discounted net benefits to local government nationally			
	Local government strata			
	Small <1000	Medium 1000 - 2000	Large >2000	Total
<b>Low (\$70 per development application)</b>	-\$151,958	\$9,343,386	\$13,103,382	\$22,294,809
<b>Medium (\$110 per development application)</b>	\$2,342,408	\$15,440,885	\$20,925,040	\$38,708,333
<b>High (\$150 per development application)</b>	\$4,836,774	\$21,538,385	\$28,907,945	\$55,283,104

As was expected, Table 19 shows a high sensitivity of the results for small local governments to changes in start-up costs, with the discounted net benefits becoming positive for small local governments over a 10 year period if the capital cost is reduced from \$50 000 to \$30 000. In contrast, the benefits for medium and large local governments experience little change to changes in start-up costs. Nationally, the total discounted net benefits increases by around 7 percent to over \$41 million if capital costs for start-up are reduced.

**Table 19: Sensitivity of estimated benefits to local government nationally to changes in start-up costs for eDA initiatives**

	Estimated discounted net benefits to local government nationally			
	Local government strata			
	Small <1000	Medium 1000 - 2000	Large >2000	Total
<b>Low (\$30 000)</b>	\$4,096,621	\$15,956,318	\$21,287,454	\$41,340,393
<b>Medium (\$50 000)</b>	\$2,342,408	\$15,440,885	\$20,925,040	\$38,708,333
<b>High (\$100 000)</b>	-\$2,043,124	\$14,152,304	\$20,301,186	\$32,410,366

In terms of sensitivity to changes in discount rates, the findings in Table 20 suggest a low to medium sensitivity to this variable. Impacts are most significant for the small local government strata in each scenario. If the discount rate is reduced to 7 percent, the national discounted net benefits increase by almost 14 percent to over \$44 million. A 2 percent increase in the discount rate will decrease the national discounted net benefits by almost \$4.5 million or 12 percent.

**Table 20: Sensitivity of estimated benefits to local government nationally to changes in discount rate**

	Estimated discounted net benefits to local government nationally			
	Local government strata			
	Small <1000	Medium 1000 - 2000	Large >2000	Total
<b>Low (7 percent)</b>	\$2,946,628	\$17,483,889	\$23,704,789	\$44,135,306
<b>Medium (9 percent)</b>	\$2,342,408	\$15,440,885	\$20,925,040	\$38,708,333
<b>High (11 percent)</b>	\$1,836,632	\$13,691,641	\$18,692,851	\$34,221,124

## 6.4 Industry Benefits

### 6.4.1 Industry avoided costs

As shown in Table 21, it is estimated that industry avoids substantial lodgement costs over the long term, with industry benefiting by between \$56 and \$71 million, depending on the discount rate used. As noted in 5.4.14, these avoided costs include printing and postage costs and the staff time incurred in preparing and lodging the DA application. Consistent with the assumed take-up rate profiles, these benefits increase significantly in the medium to long term as increasing numbers of DA applications are submitted via eDA facilities.

**Table 21: Industry net benefits arising from avoided lodgement costs (Formula Code: InAC<sub>NPV</sub>)**

	Total Industry Benefits (Cumulative discounted net present value) \$ (millions)		
	7% discount rate	9% discount rate	11% discount rate
Short Term	\$2.1	\$2.1	\$2.0
Medium Term	\$23.2	\$21.7	\$20.2
Long Term	\$45.5	\$39.2	\$33.9
Total	\$70.8	\$62.9	\$56.1

These avoided costs are moderately sensitive to changes in the assumed savings per development application. A sensitivity analysis was undertaken where the assumed avoided costs per residential and commercial development application (\$75 and \$150) were varied by plus and minus 10 percent. Table 22 illustrates that a 10 percent decrease in avoided costs reduces the net benefits to industry by almost \$8 million over 10 years (a 13 percent decrease), whilst a ten percent rise in avoided costs results in an increase in benefits to industry of about \$4 million over ten years (a 7 percent increase).

**Table 22: Sensitivity of industry net benefits to changes in assumed avoided lodgement costs**

	Total Industry Benefits (Cumulative Discounted net Benefits) \$ millions		
	Low (less 10 percent)	Medium	High (plus 10 percent)
Short Term	\$1.8	\$2.1	\$2.2
Medium Term	\$18.9	\$21.7	\$23.1
Long Term	\$34.2	\$39.2	\$41.8
Total	\$55.0	\$62.9	\$67.2

## 6.4.2 Opportunity cost of investment “brought forward”

Table 23 shows the estimated savings in approval time gained per local government strata over the short, medium and long term, based on the assumed time saving per development application of 5 days. Table 24 shows the estimated time-savings nationally.

**Table 23: Estimated savings in approval times per local government (Formula Code: SATI)**

	Estimated Time Savings (days)			
	Council Strata			
	Small <1000	Medium 1000 - 2000	Large >2000	Total
Short term	11	686	1,836	2,532
Medium term	383	13,507	35,601	49,491
Long term	856	29,088	74,539	104,483
Total estimated time savings over 10 years	1,249	43,281	111,975	156,505

**Table 24: Estimated savings in approval times nationally (Formula Code: SATI)**

	Estimated Time Savings (days)			
	Council Strata			
	Small <1000	Medium 1000 - 2000	Large >2000	Total
Short term	6,352	28,115	36,713	71,180
Medium term	230,993	553,780	712,012	1,496,785
Long term	515,885	1,192,621	1,490,776	3,199,281
Total estimated time-savings nationally over 10 years	753,230	1,774,516	2,239,501	4,767,247
Estimated percentage improvement in approval times	2%	12%	14%	7%

These tables show that the greatest benefits accrue to large and medium sized local governments. This stems from the large number of development applications received by these strata, together with their substantially higher estimated take-up rate of eDA. The time savings accruing to industry in the medium to long term are also more significant, again due to the local government take-up profile for eDA initiatives.

Based on these estimated time-savings, Table 25 shows the estimated value to industry arising from the introduction of the proposed eDA protocol and the subsequent move to eDA initiatives.

**Table 25: Industry benefits arising from estimated savings in approval time (Formula Code: InOC<sub>NPV</sub>)**

	Industry Benefits (Cumulative discounted net present value)		
	\$ million		
	7% discount rate	9% discount rate	11% discount rate
Short Term	\$1.6	\$2.1	\$2.5
Medium Term	\$20.5	\$24.8	\$28.7
Long Term	\$45.4	\$51.2	\$55.2
Total	\$67.5	\$78.1	\$88.3

These results show that the potential benefits to industry from the estimated savings in approval time are substantial over time. These benefits arise from industry's ability to achieve investments earlier than would be the case without the proposed eDA protocol being in place, hence allowing industry to earn a revenue stream on this investment "brought forward".

The cumulative industry net benefits range from \$67.5 million to over \$88 million over a 10 year time period. The range results from changes to the discount rate, which also changes the opportunity cost of capital faced by industry (the model assumes that the opportunity cost of capital for industry equals the discount rate).

The majority of benefits accrue during the medium to long term, which is largely due to the take-up rates of eDA by local governments and by customers being higher in later years.

A critical assumption in the estimation of these industry benefits is clearly the extent of the time-savings experienced by industry as a result of local government implementing eDA initiatives. Table 26 shows the sensitivity of potential industry benefits arising from changes to assumed time-savings of 1 day either side of the original assumption (i.e., times-savings of 4 days and 6 days per application). These figures are calculated using a discount rate of 9%.

**Table 26: Sensitivity of industry net benefits to changes in assumed approval time-savings**

	<b>Industry Benefits</b> <b>(Cumulative Discounted net Benefits)</b> <b>\$ million</b>		
	Time saving 4 days	Time saving 5 days	Time saving 6 days
<b>Short Term</b>	\$1.7	\$2.1	\$2.5
<b>Medium Term</b>	\$19.9	\$24.8	\$29.8
<b>Long Term</b>	\$41.0	\$51.2	\$61.5
<b>Total</b>	\$62.5	\$78.1	\$93.8

Not surprisingly, these results show that a one day change to lapsed time savings from the introduction of eDA initiatives results in changes of plus or minus 20 percent (over \$15.5 million) in the savings experienced by industry. This indicates that changes to the assumed time-saving result in significant differences to the total benefits to industry. Nevertheless, even at a saving of 4 days per application the estimated net benefits to the development industry are significant.





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# ATTACHMENT A – STAKEHOLDERS CONSULTED

Stakeholder	Contact Name
<b>Jurisdictions – Planning Agencies</b>	
Department of Infrastructure, Planning and Natural Resources	Messrs Tony Hart/ Neil Cox / Olivier DeLeatt
ACT Planning & Land Authority	Mr Phil Jorritsma Mr Ben Searle
Planning South Australia	Mr David Goodwins
Queensland Department of Local Government and Planning	Mr Graeme Ballard
Victorian Department of Sustainability and Environment	Ms Melissa Harris
Victorian Department of Sustainability and Environment	Mr Peter Allen
Western Australian Department of Planning and Infrastructure	Mr Stephen Goldie Mr Marcus Devenish
Tasmanian Department of Primary Industries Water and Environment	Mr Jeff Gilmore
Northern Territory Department of Infrastructure, Planning and Environment	Mr Jim O'Neill
<b>Jurisdictions – Other</b>	
National Office for the Information Economy	Mr Brian Stonebridge Mr Victor Pawley
Environment Australia	No response
Australian Bureau of Statistics	Mr Jeff Allen
Australian Building Codes Board	Mr Jack Bramwell
<b>Industry Organisation</b>	
Property local government of Australia	Mr Paul Waterhouse
Master Builders Association	Mr Neil Evans
Urban Development Institute of Australia	Mr Chris Schomburgk
Australian Institute of Building Design Professions	No response
Building Designers Association of Australia	Mr Barrie Wright
Planning Institute of Australia	Mr Bruce Frazer
Australian Institute of Building Surveyors	Mr George Capetanakis
Institution of Surveyors Australia & Association of Consulting Surveyors Australia	Mr Anthony Thorne
Royal Australian Institute of Architects	Mr Craig Smith
Institution of Engineers Australia	No response
<b>Local Government Associations</b>	
Municipal Association of Victoria	No response
Local Government Association of South Australia	No response
Local Government Association of Queensland	Ms Catherine Anderson

Stakeholder	Contact Name
Local Government Association of Tasmania	Mr Allan Garcia and Mr Andrew Keorbin
Australian Local Government Association	Ms Carina Gregory on behalf of Cr Dr Sara Murray
The Western Australian Local Government Association	Ms Allison Hailes
Local Government Association of NSW & Shires Association of NSW	Ms Carina Gregory
Local Government Association of the Northern Territory	No response
<b>Selected local governments</b>	
Brisbane City Council	Mr Alan Roberts
Penrith City Council (NSW)	Mr Richard Baczelis
Pittwater Council (NSW)	Ms Lynn Dennis
Mundaring Shire Council (WA)	Mr Adrian Eastwell
City of Whittlesea (Vic)	Mr Neill Hocking
Hobart City Council (Tas)	Mr Neil Noye
Mackay City Council (Qld)	John Caldwell
City of Salisbury (SA)	No response
<b>Other</b>	
Planning Portal - UK	Mr Richard Goodwin
Queensland SmartService	Mr Gavin Atkinson
Land Information System Tasmania	Mr Michael Varney
Service Tasmania	Messrs Glenn Hill and Rob Frew
<b>Software Suppliers</b>	
InfoMaster	Ms Marie Eedy
GEAC	Mr Garry Dohnt
Objective Corporation	Mr Ron Reed
Technology One	Mr Richard Hill
Verdant Programming Pty Ltd	Mr George Giannakopoulos

## ATTACHMENT B – ADDITIONAL RESULTS TABLES

**Table 27: Estimated benefits and costs per small local government (<1000 development applications per annum)**

Year	Costs		Benefits			
	Capital	Maintenance	Transaction Cost	Net Benefits	Discounted Net Benefits	Cumulative Net Benefits
1	\$50,000	\$1500	\$2,655	-\$48,845	-\$44,812	-\$44,812
2		\$1500	\$4,002	\$2,502	\$2,106	-\$42,706
3		\$1500	\$5,350	\$3,850	\$2,973	-\$39,734
4		\$1500	\$6,697	\$5,197	\$3,682	-\$36,052
5		\$1500	\$8,045	\$6,545	\$4,253	-\$31,798
6		\$1500	\$8,592	\$7,092	\$4,228	-\$27,570
7		\$1500	\$9,139	\$7,639	\$4,179	-\$23,391
8		\$1500	\$9,686	\$8,186	\$4,108	-\$19,283
9		\$1500	\$10,233	\$8,733	\$4,021	-\$15,262
10		\$1500	\$10,780	\$9,280	\$3,920	<b>-\$11,343</b>
NPV				<b>-\$11,343</b>		

**Table 28: Estimated benefits and costs per medium local government (Between 1000 and 2000 development applications per annum)**

Year	Costs		Benefits			
	Capital	Maintenance	Cost	Net Benefits	Discounted Net Benefits	Cumulative Net Benefits
1	\$50000	\$1500	\$21,601	-\$29,899	-\$27,431	-\$27,431
2		\$1500	\$32,564	\$31,064	\$26,146	-\$1,284
3		\$1500	\$43,528	\$42,028	\$32,454	\$31,169
4		\$1500	\$54,492	\$52,992	\$37,541	\$68,710
5		\$1500	\$65,456	\$63,956	\$41,567	\$110,277
6		\$1500	\$69,907	\$68,407	\$40,789	\$151,066
7		\$1500	\$74,358	\$72,858	\$39,856	\$190,922
8		\$1500	\$78,809	\$77,309	\$38,799	\$229,721
9		\$1500	\$83,260	\$81,760	\$37,645	\$267,366
10		\$1500	\$87,711	\$86,211	\$36,417	<b>\$303,782</b>
NPV				<b>\$303,782</b>		

**Table 29: Estimated benefits and costs per large local government (>2000 development applications per annum)**

Year	Costs		Benefits			
	Capital	Maintenance	Cost	Net Benefits	Discounted Net Benefits	Cumulative Net Benefits
1	\$50000	\$1500	\$46,259	-\$5,241	-\$4,809	-\$4,809
2		\$1500	\$69,738	\$68,238	\$57,435	\$52,626
3		\$1500	\$93,218	\$91,718	\$70,823	\$123,449
4		\$1500	\$116,698	\$115,198	\$81,609	\$205,058
5		\$1500	\$140,177	\$138,677	\$90,131	\$295,189
6		\$1500	\$149,709	\$148,209	\$88,372	\$383,561
7		\$1500	\$149,709	\$148,209	\$81,076	\$464,637
8		\$1500	\$159,242	\$157,742	\$79,165	\$543,802
9		\$1500	\$168,774	\$167,274	\$77,017	\$620,820
10		1500	\$178,306	\$176,806	\$74,685	<b>\$695,504</b>
<b>NPV</b>				<b>\$695,504</b>		

**Table 30: Estimated benefits and costs – National summary**

Year	Costs		Benefits		
	Capital	Maintenance	Transaction Cost	Net Benefits	Discounted Net Benefits
1	\$2,827,500	\$84,825	\$896,873	-\$2,015,452	-\$1,849,038
2	\$956,875	\$28,706	\$1,600,491	\$614,910	\$517,557
3	\$956,875	\$28,706	\$2,471,363	\$1,485,782	\$1,147,297
4	\$956,875	\$28,706	\$3,509,491	\$2,523,910	\$1,788,001
5	\$956,875	\$28,706	\$4,714,874	\$3,729,293	\$2,423,784
6	\$403,000	\$12,090	\$5,293,046	\$4,877,956	\$2,908,566
7	\$403,000	\$12,090	\$5,904,016	\$5,488,926	\$3,002,630
8	\$403,000	\$12,090	\$6,547,784	\$6,132,694	\$3,077,792
9	\$403,000	\$12,090	\$7,224,350	\$6,809,260	\$3,135,172
10	\$403,000	\$12,090	\$7,933,714	\$7,518,624	\$3,175,948
<b>NPV</b>				<b>\$19,327,710</b>	