



# PDF Whitepaper

Incorporating the role of PDF in the Australian  
Government's Electronic Services Delivery  
strategy

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# Table of Contents

<b>1</b>	<b>INTRODUCTION</b> .....	<b>3</b>
<b>2</b>	<b>PDF USE: A LINEAR PERSPECTIVE</b> .....	<b>4</b>
2.1	PDF: FRAUGHT WITH PROBLEMS? .....	4
2.2	PDF: WHEN TO USE IT? .....	5
2.3	PDF: GUIDELINES FOR EFFECTIVE USE .....	6
<b>3</b>	<b>PDF FORMS: A DATA CAPTURE TOOL?</b> .....	<b>7</b>
3.1	INTERACTIVE PDF FORMS: THE BENEFITS .....	7
3.2	INTERACTIVE PDF FORMS: THE LIMITATIONS .....	7
<b>4</b>	<b>PDF: RECOMMENDATIONS FOR IMPROVEMENT</b> .....	<b>8</b>
4.1	ALTERNATIVE PLATFORMS FOR DATA CAPTURE .....	8
4.2	GUIDELINES AND RECOMMENDATIONS FOR INTERACTIVE PDF FORMS.....	8
<b>5</b>	<b>CONCLUSION</b> .....	<b>9</b>
<b>6</b>	<b>ABOUT USABILITYONE</b> .....	<b>10</b>
6.1	SO WHY USABILITYONE? .....	10



## 1 Introduction

PDF has come a long way over the years. It is now widely used as a standard publishing format for various documents due to its ability to preserve integrity of appearance and formatting across diverse platforms.

As part of their Electronic Services Delivery (ESD) strategy, the Australian Government has elected to make all paper-based forms available to the general public in electronic format as PDF documents on its various public service department websites. As the Government continues to develop new methods of improving ESD, increasingly the public are moving to the Internet as a reliable method of contact with Australian Public Service departments.

The user experience of PDF, however, has been overlooked. There are a number of usability problems inherent for the user who attempts to utilise PDF for both online content and as a data capture tool.

From a usability perspective, the provision of online content in the form of PDFs, as well as the use of PDFs as an online data capture tool (i.e. using PDF as the medium for online forms), needs further consideration and analysis of its inherent advantages and limitations for the user.

As leading experts in the field of usability research and user testing, UsabilityOne have designed this whitepaper to provide an overview of the practical applications of PDF, as well as its limitations and potential alternative applications for online data capture.

The first section (*PDF: Fraught with problems?*) of this paper will provide an overview of the limitations and problems inherent in the utilisation of PDF, and suggest some guidelines for maximising its effectiveness.

Whilst the use of interactive PDF forms as a means of online data capture is on the rise, these forms are often plagued by an extremely poor user experience. In light of this, the second section of this paper (*3 PDF Forms: A Data Capture Tool?*) will examine interactive PDF forms and make recommendations on how to best perform online data capture using PDF or other alternatives, such as Internet applications designed and built for this express purpose.

As the key role of online data capture continues to become more central – particularly to Government departments – consideration of the usability of data capture methods will become increasingly important.

## 2 PDF Use: A Linear Perspective

### 2.1 PDF: Fraught with problems?

There are a range of usability concerns centred around the use of PDFs on websites. The inclusion of PDFs on websites without detailed consideration of how and when users are expected to utilise these documents can often result in a poor user experience.

One of the main issues associated with PDFs is that they are often converted directly from documents designed for print media. Problems derived from converting print documents into PDFs include:

- PDFs tend to be complete replicas of offline documents, which are designed with a different type of audience and experience in mind.
- Print-PDF conversions often result in large, clunky documents that are difficult to read on a computer screen and require the user to employ extensive use of the zoom and scroll buttons to move through the document.
- Direct conversion from print media to PDF also means that a document does not adhere to the principles of good writing for the web.
- Print documents often include graphics and elaborate layouts, which is not optimal for web usage as it results in increased file size and download times.
- There is an increase in the amount of time and effort users need to expend when searching for the information they require within the document.
- Without careful tagging of a document screen readers and other assistive technologies are unable to render content for all users in a meaningful coherent fashion.

Additional problems related to the usability of PDF documents on websites include:

- As PDFs are a separate environment from web browsers, novice users can become easily confused and disoriented when they are automatically transferred from a webpage to a PDF document.
- Navigation from an opened PDF document to the original window can be difficult, especially as PDFs cannot indicate their current location within the website, increasing the likelihood that users may not know how to navigate back to the website they originally accessed.

## 2.2 PDF: When to use it?

*With all the usability problems listed above, why use PDFs at all?*

There are actually quite a few good reasons to include a PDF file on your site. PDFs allow a consistent viewing experience of documents across platforms and browsers and is an ideal medium for:

- Delivering lengthy documents to users in a format suitable for download and print.
- Documents with footnotes, complicated mathematical notations, specimens of type, or other samples of files that cannot be rendered in a browser.
- Documents with digital rights management. These documents are compatible with PDF, which supports 128-bit encryption that can be used with screen readers.
- Documents with complicated layout and multiple columns that cannot be coded with legitimate accessibility tags in HTML are also more suitable to be displayed in PDF. Naturally, documents like this remain more suitable for print media than display on computer screens.

To maximise the usability of PDFs and online content, however, different versions of content should be developed for different mediums. Converting print documents into PDF has significant limitations and can negatively impact the user experience.

## 2.3 PDF: Guidelines for effective use

PDF documents need to be carefully implemented and considered for websites. Further, accessibility is a fundamental concern and accessibility guidelines should be considered during the creation of PDF documents - in particular, Success Criteria 1.1.1 (Non-text Content) and 1.3.1 (Info and Relationships) of WCAG 2.0. Adhering to the following guidelines can improve the implementation of PDF:

- Accessible PDF documents can be created with careful tagging. There are detailed instructions on how to create a well-tagged, accessible PDF on the Adobe website (<http://www.adobe.com/accessibility/>).
- Links to PDF documents should clearly indicate that the document is a PDF via the use of the PDF logo or text.
- The file size of a PDF document needs to be communicated to allow the user to decide make an informed decision about the time the download will take and the amount of data being transferred.
- It is best to offer the user the choice of saving the PDF file or opening it with a program of their choice when the link is clicked on.
- It is also advisable to always offer users the clear option of whether or not they want to download a PDF, either to save on their computer for later viewing/printing or to open it for immediate viewing. Being thrown into a large, slow-loading PDF file without warning can be extremely disconcerting, particularly if the user has accessed the PDF as the result of a web search and their search phrase is mentioned only once within the PDF's 200 odd pages.
- Ideally, the link to a PDF would sit on a web page with a summary and page count marked beside the link to the PDF. This page can then act as a gateway to the PDF. Any links and search engine indexes should be directed to this HTML gateway page instead of the PDF document itself.
- If offering a PDF as a printable alternative to an HTML page, it should be stated that the file is for printing purposes only.
- It is also wise to ensure backwards compatibility of PDF files with older versions of PDF Readers like Adobe Reader as users may not yet have updated to the most recent version of their PDF Reader.

### 3 PDF Forms: A Data Capture Tool?

Whilst PDF is now a standard publishing format for various documents across diverse platforms, a newer functionality is beginning to be widely used: the capture of data through interactive PDF forms.

#### 3.1 Interactive PDF forms: The benefits

In theory, interactive PDF forms may seem to provide an ideal platform to assist government in its move towards electronic service delivery models.

- Filling out forms online is much easier for users than printing out forms, completing them and then posting them to the relevant government department.
- Having direct access to a database of information provided by users via online forms would also open up a multitude of possibilities, such as linkage of information and perhaps even pre-populated data in other forms across various government departments.

#### 3.2 Interactive PDF forms: The limitations

The use of interactive PDFs as a data capture tool is problematic for several reasons.

- Users require a recent version of Adobe reader to be able view and save forms.
- The page layout for interactive forms tends to be designed for paper forms, as such, they are often poorly laid out for viewing on a monitor. This can delay the efficiency of users entering data.
- Users are often unaware that they can complete a form via PDF; this is likely to lead to users continuing to print and complete documents offline.

## 4 PDF: Recommendations For Improvement

### 4.1 Alternative platforms for data capture

To enhance the user experience, it is necessary to look outside the box and consider alternatives to PDF forms. Specifically designed internet applications would offer more a superior alternative to interactive PDFs, and would offer a better platform to capture data from electronic forms.

Considering that the intent of interactive forms is to capture data electronically, the need for the layout and presentation of these PDF forms to mirror actual hardcopy forms is redundant. It would be more effective to implement Internet applications specifically designed for the purpose of data capture. This type of online form would adhere to established usability guidelines and be optimised for viewing and user interaction on web browsers.

### 4.2 Guidelines and Recommendations for interactive PDF forms

Although specifically designed Internet applications would represent a better platform to capture data from electronic forms, there are some guidelines and improvements that can be made in order to enhance the user experience of interactive PDF forms.

- Ensuring that there is a disclaimer prominently displayed explaining that an email client, such as MS Outlook, needs to be installed before results can be sent via email would decrease user frustration. After a user has spent a considerable amount of time filling in a form, being unable to send it because an email client is not installed on the computer would be exasperating in the extreme.
- Document compatibility also needs to be considered, as earlier versions of PDF readers cannot open newer interactive forms. To avoid users wasting time and bandwidth downloading a file they are unable to open, websites should:
  - Clearly mark the version of the PDF reader on the HTML gateway page.
  - A link should also be provided on the same page to download the latest version of a PDF Reader that can support the file.
  - Ideally, the website should have a utility which can detect the current installed version of PDF Reader software before downloading the file, and alert the user to the need to upgrade if it is incompatible.
- Advantage should be taken of the potential to use the database of information provided by users via interactive PDF forms. Governments could pre-populate data across department websites to improve user experience.
- Development of a way to save partially completed interactive PDF forms would be of great benefit to users.

## 5 Conclusion

PDF is a useful tool, but it is not the complete solution to the Australian Government's ESD (Electronic Services Delivery) strategy. For the Government – and for organisations interested in reviewing and improving their ESD – PDF must be considered as one component of a larger whole.

PDF is a useful platform for the provision of paper forms in electronic copy for the purpose of download and printing for offline reading or completion. However, using PDF to capture data from interactive electronic forms provides a poor user experience. Whilst there are steps to take – outlined above – to improve user experience of interactive PDF forms, data or information capture is better served by Internet applications custom-designed and built for this express purpose.

## 6 About UsabilityOne

UsabilityOne is a leading Australian usability consultancy, delivering custom solutions to a breadth of industry. Our unique and flexible approach allows us to tailor solutions to any need.

Since 2001 we have delivered solutions to all levels of government as well as large corporate, community based and not for profit organisations.

Our offices are located in Melbourne and Sydney and include fully equipped testing labs and research facilities, providing UsabilityOne and our clients with complete control over all projects.

UsabilityOne prides itself on being committed to the research industry and keeping ahead of the latest trends and technology in order to ensure our clients receive the best possible results. Most recently, UsabilityOne presented at the ARK Group Conference on Strategically Managing Intranet Developments October 7<sup>th</sup> & 8<sup>th</sup> 2009 and was awarded Authorised Consultant for Google Optimiser by Google in 2009.

### 6.1 So why UsabilityOne?

UsabilityOne presents clients with unique benefits, some of which include:

- Delivering actionable insights and recommendations to support decision making
- Specialisation in turning research into design recommendations
- Partnering with clients and expert designers to deliver optimal results
- Research facilitated independently of the design team to provide an objective and independent perspective
- A track record of assisting clients to maximise their return on investment

For more information contact UsabilityOne on 1300 783 103 or visit [www.UsabilityOne.com](http://www.UsabilityOne.com).