Pfeiffer Report

Adobe Cloud Documents: Expanding the Creative Workflow

About this research

This report presents the findings of a market-specific benchmarking and research project conducted by Pfeiffer Consulting for Adobe. The main aim of the research was **to document the efficiency and productivity gains linked to the use of cloud documents and adjacent workflow improvements**, compared to results obtained when relying on conventional ways of working with files and collaborating.

Benchmarks were executed using *Pfeiffer Consulting's Methodology for Productivity Benchmarking*, which has been fine-tuned over more than a decade, and measures the time experienced operators take to execute specific tasks. Please refer to the Methodology section on the last page of this document for more information.

About Cloud Documents

A wide range of Creative Cloud desktop and mobile applications now support cloud documents, and offer a variety of options not available when using files stored locally, such as version history, new ways of collaborating on a file, as well as tight interoperability between desktop and mobile apps.

This research project specifically focussed on productivity gains linked to the use of cloud documents and associated technologies, both in an individual workflow situation and with respect to collaborative productivity.

In our benchmarks, **using cloud documents was on average over twice as fast** as other methods. (See chart below.)

Executive Summary

▷ Adobe Creative Cloud offers **increasingly robust collaboration features**, including Creative Cloud Libraries, cloud documents and **more efficient methods for collaborating on documents** and **reviewing them.**

▷ Version history, now available with cloud documents on Photoshop, Illustrator, XD and on iPad apps, **makes managing versions faster and easier**, and has **the potential to transform** how creative professionals work.

▷ **Invite to Edit** makes collaborating on cloud documents and **across desktop and mobile platforms** significantly easier.

▷ Overall, working with cloud documents was **significantly faster even with relatively slow internet connections** in these benchmarks.

Key Benchmark Results: Average of 20 Workflow Benchmarks

With Cloud Documents (44.97 %)

Without Cloud Documents (100 %)

Chart based on the average of 20 different sets of workflow benchmarks.
A total of 312 individual benchmark measures were taken.
Reference value: Average time when working with other workflows. **Shorter is better.**

The Impact of Cloud Documents on Working with Creative Applications

The Promise of Working with Cloud Documents

It is a common assumption that when working with cloud documents or applications, there is **an implicit trade-off in terms of speed or functionality**, that one accepts for the other advantages an on-line workflow can bring. That's why, in the creative realm, users tend to work on files that are stored on the local hard drive, and only transfer files to the cloud once the work is done, or when a document needs to be shared.

Adobe's approach to cloud documents is different: The company **sees cloud documents as the preferred way of working for creative professionals**, by adding a growing number of cloud-related features, such as **version history** (see following section), **easy document hand-off** between desktop and mobile apps, **Invite to Edit, Invite to View and Comment,** and more. While these are very attractive features, the crucial question is of course: **How well do they work?**

This question is **particularly important with programs such as Photoshop and Illustrator**. Both are known for allowing the creation of hugely complicated files, that, even when using fast local storage can take some time to save. And then there is **the question of network bandwidth** of course: How well do cloud documents work with a relatively slow internet connection, when the user is on the road?

Major Points

▷ In benchmarks for this research, using cloud documents was **significantly faster than using local storage**.

▷ Working with cloud documents was significantly faster **even with very large and complex Photoshop documents.**

▷ Even using **relatively slow internet connections, cloud documents were more efficient** than working with local storage in these benchmarks.

▷ Support for cloud documents on mobile apps **improves interoperability between desktop and mobile creative environments**, and **significantly speeds up** accessing documents on different platforms.

Cloud Documents Productivity: Network Bandwidth Impact
Time-scale in seconds. All data are the average of 3 individual benchmarks
Shorter is better.
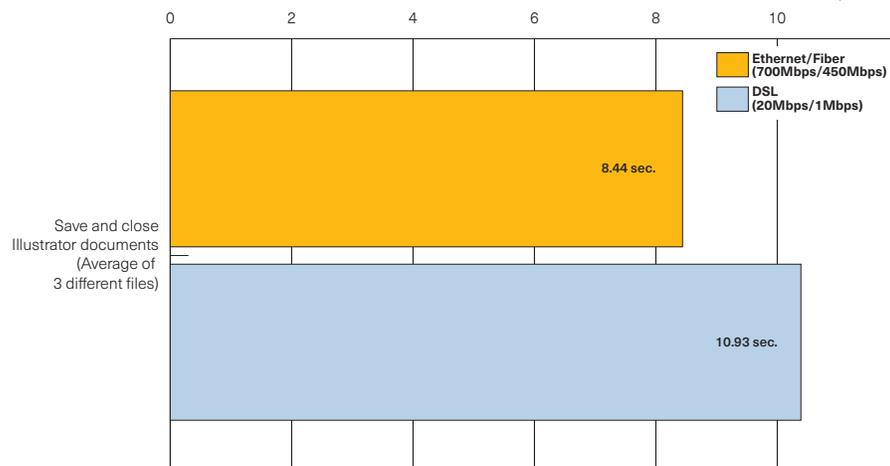
Network bandwidth is a considerable problem when working with cloud-based systems. To find out how cloud documents work on a slow connection, we conducted several benchmarks over different network speeds.

Surprisingly, using a slow DSL connection was on average only marginally slower than using a fast fiber connection — and both were about four times faster than using local storage in these benchmarks.

Application Support on Desktop and iPad

	PS	AI	InD	XD	PS iPad	AI iPad	Fresco	Spark	Rush
Cloud document support	●	●		●	●	●	●	●	●
Auto-save	●	●		●	●	●	●	●	●
Version history	●	●		●	●	●	●		
Invite to edit	●	●		●	●	●	●	●	
Make available offline	●	●			●	●	●	●	●
Co-editing				●					
Share to view and comment from web & CC desktop app	●	●		●	●	●	●		
Share for review			●	●					

What the Benchmarks Tell Us

For our benchmarks we used **real-world documents of varying complexity** — in the case of Photoshop, compositions that ranged from relatively simple documents, weighing in at less than 100MB, to complex, multi-layered compositions with several embedded images, that exceeded 1.4GB. For Illustrator, we used a complex vector file, a document with many art-boards, and a 336MB file with many embedded images. With these files, we **compared cloud documents to using a fast internal SSD** for storage in several different workflow situations.

The results of the benchmarks surprised us: **Working with cloud documents was systematically faster than using local storage,** even in extreme cases: saving and closing the complex 1.4GB Photoshop composition only took 15 seconds — compared to over 30 using the fast internal SSD of the workstation. (See chart below.) **And even using a relatively slow DSL Internet connection, cloud documents were significantly faster.** (See chart on previous page.)

Working with Cloud Documents: Key Benchmark Results

iPad Document Hand-Off
Time-scale in seconds. All data are the average of 3 individual benchmarks
**Shorter is better.**
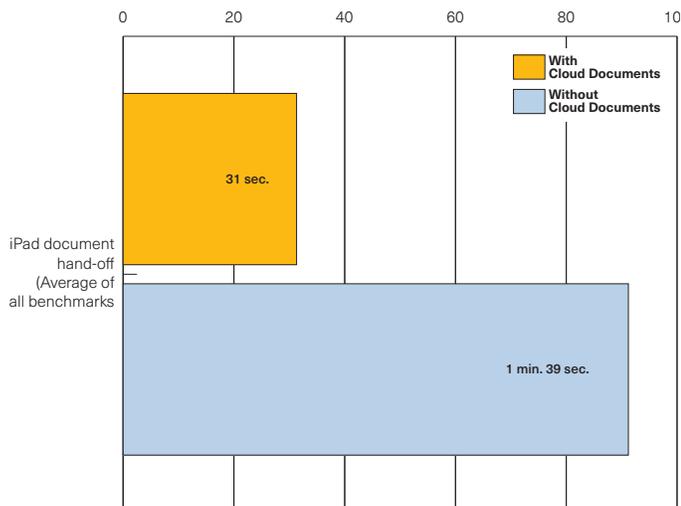
Hand-off between desktop and mobile apps is significantly faster using cloud documents: Opening cloud documents in Photoshop and Illustrator for iPad was over three times faster on average than transferring files using iCloud Drive.

Cloud Documents vs. Local Storage: Illustrator
Time-scale in seconds. All data are the average of 3 individual benchmarks
Shorter is better.
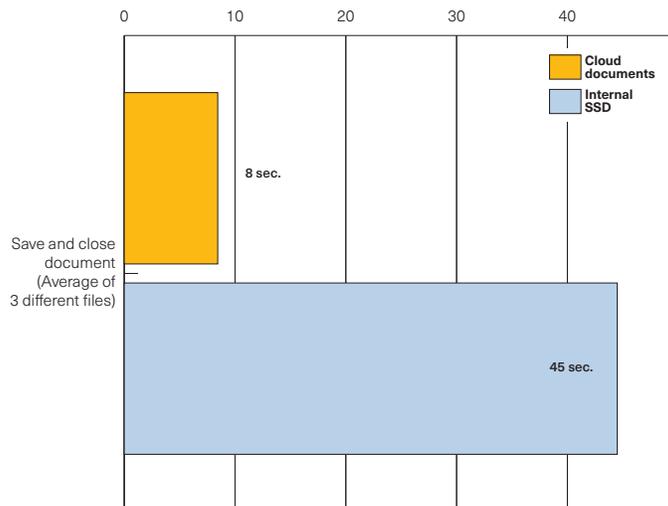
Our benchmarks show that working with cloud documents provides a clear productivity advantage: Saving and closing Illustrator documents was over five times faster using cloud documents than the fast internal SSD of our workstation.

Redefining the Creative Workflow: Cloud Documents Version History

Version Management: The Story so Far

Managing different versions of documents is a natural part of the creative workflow. **In most cases, it is done manually** by the user: It means, time and again, saving the working document under a different name, in order to be able to return to a previous state if need be — or to branch out from a previous state to create a different document altogether.

Practically speaking, this is not ideal: **It can be time-consuming** (especially for larger documents), **and also confusing**, since one usually winds up with a folder full of similarly named documents which one has to go through to find the right one if one needs to return to a previous state. This in turn means that usually, creating different versions of a document is mainly thought of as a safeguard rather than a way of working creatively.
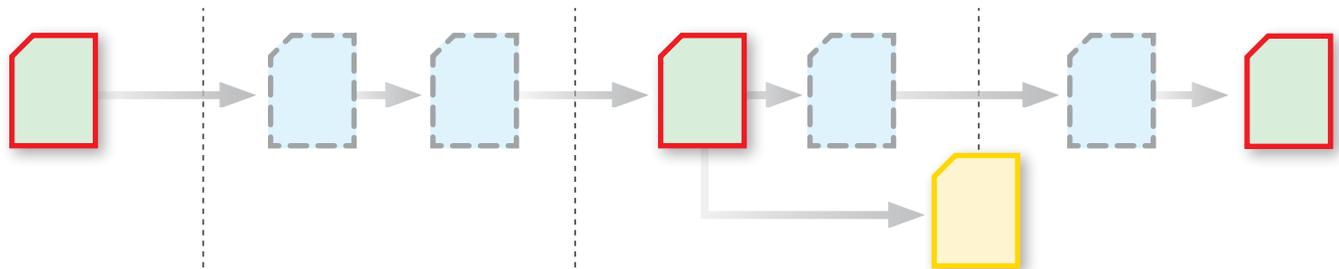
How Cloud Documents Expand the Creative Workflow

All Creative Cloud applications and mobile apps (with the exception of Spark) support version history for cloud documents: **Illustrator** and **XD** were the first ones, **Photoshop** has now joined the fray, as well as

Major Points

▷ Version History is available with cloud documents on **Illustrator and Photoshop on the desktop and on iPad**, as well as on **XD** and on **Fresco**

▷ Managing and comparing different versions of a document **is significantly faster and easier** using Version History.

▷ Versioning has **the potential to transform** the way users work with their documents.

How Cloud Document Version History Works

Saving as cloud document **enables version history** for the document.	Save operations, including auto-saves, **each create a new version** in the version history.	**Versions marked by the user** are **permanently stored** with the cloud document.	**Branching out** from an earlier version is possible by opening a past version or reinstating a version and saving as a new cloud document with its own version history
Cloud documents can **be made available off-line.**	**Unnamed versions** remain stored with the cloud document for 30, 60 or 180 days (depending on the Creative Cloud plan.)	It is at any point possible to **revert to a previous version.** Saving from a prior state **does not erase versions created later.**	Cloud documents **can be embedded in other cloud documents**.

several mobile apps such as **Photoshop and Illustrator for iPad**, as well as **Fresco**. It would seem that it's only a question of time until version history will be supported by most, if not all Creative Cloud applications.

For the user, version history works completely transparently. Each time a document is saved or auto-saved, a new time-stamped history state is created, which is stored with the cloud document. The user **can mark and name selected versions** in the Version History palette, which also provides a real-time preview of each version. Unmarked versions are stored 30, 60 or 180 days (depending on the type of Creative Cloud subscription); **marked versions are stored permanently** with the cloud document. (See flow-chart on previous page.)

The Creative Potential of Version History

Our benchmarks show that using version history to manage different states of a document is faster than working manually with the local file system. (See charts below.) **It is on the creative level, however, that version history could have a transformative impact** on the way creative professionals work with their documents. The fact that it is possible to quickly compare different versions of the same document is essential. As important is the fact that **it is possible to revert** to different states of a document. In this respect, there is one important nuance in the way version history works: **even if you revert to an earlier state of a document, the *versions created later are not erased* in the version history.**

In other words, version history makes it possible to navigate rapidly between different states of the creative inspiration that drives the work. This in turn **transforms the way a creative professional can view their work** and explore different threads of creative experimentation.

Cloud Documents on iPad

Several Adobe mobile apps now support cloud documents, and thus provide streamlined interoperability between desktop applications, their mobile counterparts such as **the iPad versions of Photoshop and Illustrator**, as well as standalone mobile apps such as **Fresco** and **Spark.**

But the interoperability between desktop and mobile apps goes beyond simplified access to files: Cloud documents from Photoshop and Illustrator on both desktop and iPad **all support version history**, accessible on both desktop and mobile platforms, as does Fresco on the iPad, making it possible to go back and forth between platforms without losing intermediate stages in a document that might be needed later.

Finally, support for the **'Invite to Edit' functionality will be available on mobile versions** of Photoshop and Illustrator as well as on Fresco.

The Productivity Impact of the Versioning Workflow

Version History Benchmarks: Illustrator
Time-scale in seconds. All data are the average of 3 individual benchmarks
Shorter is better.

Version History Benchmarks: Photoshop
Time-scale in seconds. All data are the average of 3 individual benchmarks
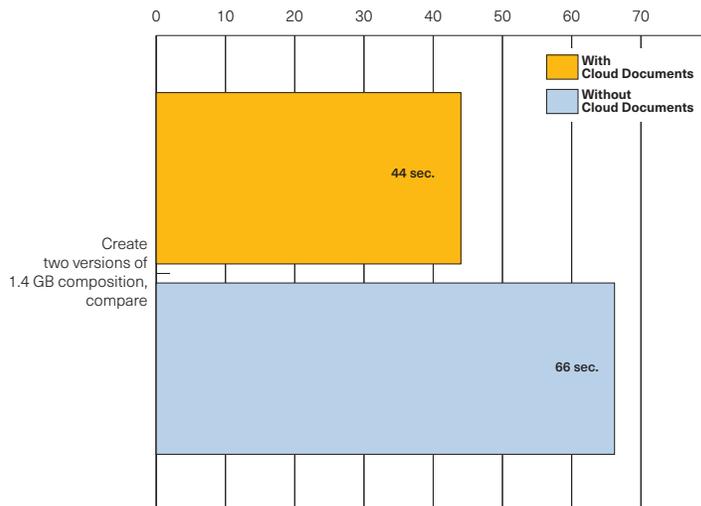**Shorter is better.**
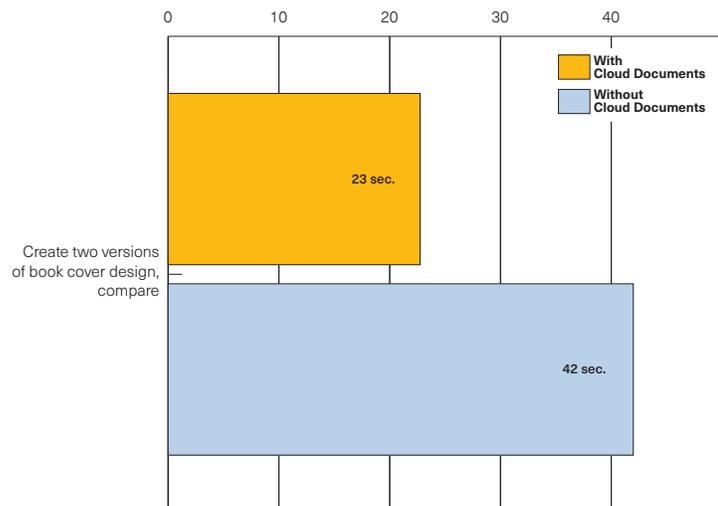
Version history is now available on Photoshop and Illustrator cloud documents, as well as on Fresco. The productivity impact of using version history rather than managing versions manually using local storage is considerable: Creating and comparing two versions of a book cover design was twice as fast using version history in our benchmarks. Even when working with a 1.4GB, multi-layered Photoshop file, using version history was significantly faster.

The Impact of Cloud Documents on Collaboration
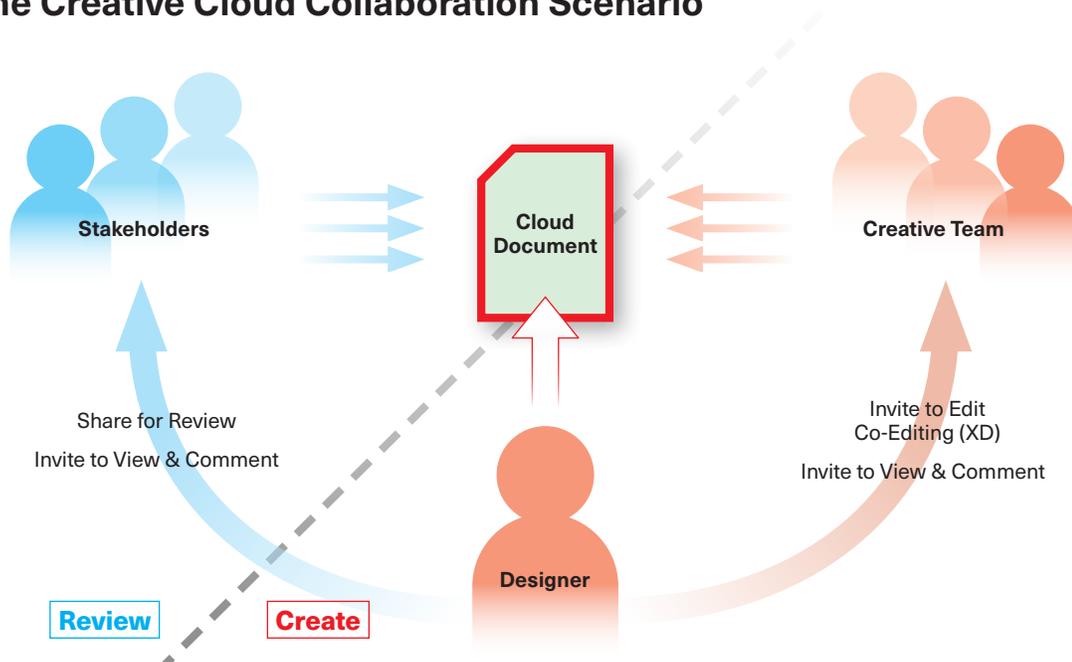
The Complexities of Creative Collaboration

It is not a secret that, as far as supporting technologies go, collaboration is generally a complex process that requires careful planning and perfect integration of the different toolsets that are used. **These complexities tend to sky-rocket when creative projects are concerned:** On one side there are the difficulties linked to the **integration of different assets and file-types** from a growing number of applications and tools, which are used to produce and deliver assets ranging from smartphone apps to web-pages and print collateral, as well as video and motion graphics. On the other side, **workgroups need to manage the review and approval process** (as well as informal commenting and feedback), involving sharing and commenting on work that is still under development.

The traditional way of managing workgroup collaboration used to be a top-down systems approach, where a workflow-management system is used to channel and manage different aspects and assets. While this works in relatively rigidly organized production environments (newspa-

Major Points

▷ Collaboration features of Creative Cloud have **significantly evolved**, including an increasingly mature implementation of Creative Cloud Libraries that can become the **backbone of a complete creative system** in a corporation.

▷ **Invite to edit** and **Share for Review** streamline collaborative processes and can **provide significant productivity benefits.**

The Creative Cloud Collaboration Scenario

Stakeholders

Cloud Document

Creative Team

Share for Review
Invite to View & Comment

Invite to Edit
Co-Editing (XD)
Invite to View & Comment

Designer

Review   Create

Cloud documents allow for a centralized approach to document creation that significantly reduces unnecessary and time-consuming exchange of documents during the creation and review of documents.

per production comes to mind, as well as high-end video post-production), such systems are costly, and, more importantly not adapted to the free-flowing creative workflows.

The Adobe Approach to Creative Collaboration

Adobe uses a distinctly different approach to collaboration in creative workgroups: instead of starting with an over-arching system that subsequently needs to be integrated with different applications, **Adobe's Creative Cloud tackles the problem from the vantage point of the creative**. That process has been implemented over many years now: It started when Adobe began providing tight interoperability of different creative environments: imaging with vector illustration and page layout, for instance, or video editing with motion graphics, for example.

The next major development happened in 2014, when Adobe introduced **Creative Cloud Libraries**, which provide direct access to creative assets through shared libraries. Over the years, libraries have evolved considerably to become one of the key pillars to creating an integrated creative design system. (See sidebar.)

With cloud documents, Adobe is **adding another key component for integration and collaboration** in the creative work environment. While we have focused so far mostly on aspects of cloud documents that concern the individual user, there are strong collaboration features offered with cloud documents, which are tailored to the specific needs of different user communities.

Photoshop and Illustrator, for instance, now offer an 'Invite to Edit' feature that allows users to invite co-workers — anybody with a Creative Cloud subscription, including free-lancers who may not be on-site — to edit a cloud document directly, without the need to create and share a separate version, and to integrate possible changes later. **XD goes even further in this approach, by allowing co-editing**, which means that several creatives can work at the same time on different aspects of an XD cloud document.

Creative Cloud Libraries

Over the years, libraries have expanded from a convenient way of re-using and sharing creative assets to a **backbone of creative collaboration** that can effectively become the basis of a shared creative system that increases design consistency across Creative Cloud apps — and has recently been expanded to **support Microsoft Word** and **PowerPoint** as well as **G Suite**.

By using shared libraries or team libraries, corporations can insure that colors, corporate assets such as logos, and type styles, as well as many other asset types are **always consistent across different applications** — and that they are **automatically updated** across all documents that use them as changes occur.

Cloud Documents Collaboration Benchmarks: Key Results

Share for Review Benchmarks
Time-scale in seconds. All data are the average of 3 individual benchmarks
Shorter is better.

Invite to Edit Benchmarks (Illustrator)
Time-scale in seconds. All data are the average of 3 individual benchmarks
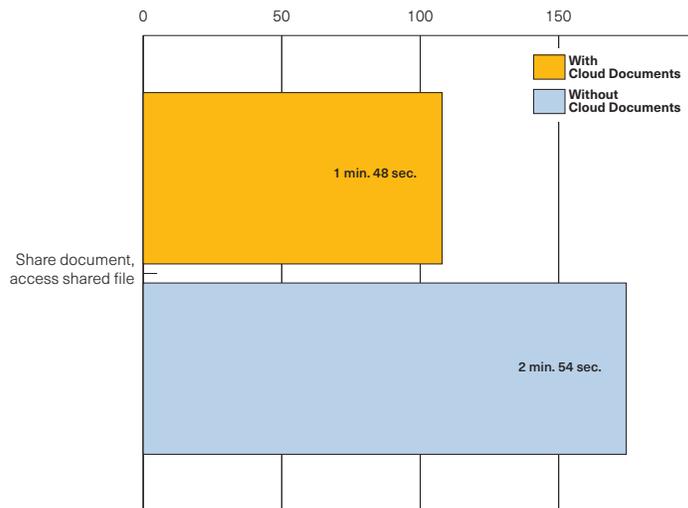**Shorter is better.**
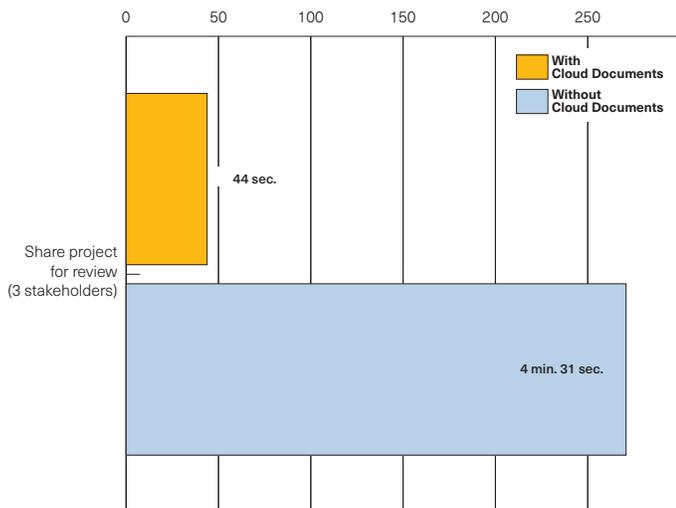
Share for review and public link-sharing for review speed up the review process significantly, particularly in situations where several stakeholders are concerned. (Chart on the left.) 'Invite to Edit', which is now available on desktop and mobile

versions of Photoshop and Illustrator, as well as on Fresco, provides a simple way of giving a co-worker the possibility to work on a cloud document without having to share the actual assets and risk inconsistencies between different versions.

How Time Savings with Cloud Documents Scale with Team-Size

Operation	Size of team	Number of Occurrences (Time Saved)			
		1	5	10	20
Invite to Edit (Average of All Benchmarks)	1	**1 min. 6 sec.**	5 min. 32 sec.	11 min. 5 sec.	22 min. 9 sec.
	5	5 min. 32 sec.	27 min. 42 sec.	55 min. 24 sec.	1 h. 50 min. 47 sec.
	10	11 min. 5 sec.	55 min. 24 sec.	1 h. 50 min. 47 sec.	3 h. 41 min. 35 sec.
Share for Review (Average of All Benchmarks)	1	**2 min. 40 sec.**	13 min. 22 sec.	26 min. 44 sec.	53 min. 29 sec.
	5	13 min. 22 sec.	1 h. 06 min. 51 sec.	2 h. 13 min. 42 sec.	4 h. 27 min. 25 sec.
	10	26 min. 44 sec.	2 h. 13 min. 42 sec.	4 h. 27 min. 25 sec.	8 h. 54 min. 49 sec.

*It is common to **underestimate the cumulative effect of small productivity gains**. Yet, as this table shows, **their impact can be significant** as the number of occurrences and team-size increase.*

Streamlining the Review Process

Reviewing documents is generally time-consuming (see table below.) With the latest releases, **Adobe has provided several improvements to this process that cut down on the number of steps involved.** InDesign and XD can create a public or private link for review, where **stakeholders can comment simultaneously and mark up via a web surface**, while the creator can implement changes and update the pre-view of the file under review in real time. With Photoshop, Illustrator and Fresco cloud documents, **users can share a view-only public link to a document** and allow commenting and markup.

In any case, **productivity gains of these collaboration features on a team-level can be significant** as the benchmarks for this research show. (See table above.)

The Intricacies of the Review Process

	Without Share for Review	With Share for Review
Review process (single reviewer)	▷ **Creator:** Convert document to PDF, share with reviewer ▷ **Reviewer:** Download shared PDF, comment ▷ **Reviewer:** Return reviewed PDF ▷ **Creator:** Download reviewed PDF	▷ **Creator:** Share public or private link for review ▷ **Reviewer:** Access shared link, comment.
Review process (multiple reviewers)	▷ **Creator:** Convert document to PDF, share with reviewer 1 ▷ **Reviewer 1:** Download shared PDF, comment, share with reviewer 2 ▷ **Reviewer 2:** Download shared PDF, comment, share with reviewer 3 ▷ **Reviewer 3:** Download shared PDF, comment, return reviewed PDF ▷ **Creator:** Download reviewed PDF	▷ **Creator:** Share public or private link for review ▷ **Reviewers:** Access shared link, comment simultaneously.
Implementation of requested changes	▷ **Creator:** Download reviewed PDF, switch between reviewed PDF and document, implement changes one by one ▷ **Creator:** Convert updated file to PDF, share for approval	▷ **Creator:** Implement changes, update review link for approval

Reviewing a creative file can be quite complex: not only does it usually require the document to be converted to PDF before reviewing can begin, it also means that the PDF file needs to be shared via e-mail, downloaded by the reviewer(s), then saved and returned to the creator to implement the required changes. This is particularly time-consuming in a staggered review process where several stakeholders are concerned.

Methodology

This benchmark project was commissioned by Adobe and independently executed by Pfeiffer Consulting.

All the productivity measures presented in this document are based on real-world workflow examples, designed and executed by professionals with many years of experience with the programs and workflows involved.

How we measure productivity

The basic approach is simple: in order to assess productivity gains that a program or solution may (or may not) bring, we start by analyzing the minimum number of steps necessary to achieve a given result in each of the applications or workflows that have to be compared.

Once this list of actions has been clearly established, we start to execute the operation or workflow in each solution, with the help of seasoned professionals who have long-standing experience in the field and with the solutions that are tested.

Every set of steps is executed three times, the average of the three measures is used.

About Pfeiffer Consulting

Pfeiffer Consulting is an independent technology research and benchmarking operation focused on the needs of publishing, digital content production, and new media professionals.

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