# Adobe Dimension CC:
# The Productivity of Design Visualization

## Adobe Dimension CC redefines how designers and photographers can create photorealistic scenes

### About this Research

This report presents the findings of a market-specific benchmarking project conducted by Pfeiffer Consulting for Adobe. The main aim of the research was **to document the efficiency and productivity gains linked to Adobe Dimension CC**, compared to other methods of producing comparable results, such as using photocompositing or adapting stock vector templates. In addition, a professional studio shoot was organized to compare images produced using Adobe Dimension CC to studio photography in terms of quality and overall throughput.

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 Adobe Dimension CC

Adobe Dimension CC is a recent addition to the growing list of Creative Cloud apps and services. **Adobe Dimension CC allows visual artists to rapidly create photo-realistic renderings of objects and scenes**. Visual artists can easily combine three-dimensional objects with 2D designs and background images, while retaining coherent perspective and realistic appearance. This **can speed up the design visualization process significantly,** as these benchmarks document: On average, based on 262 individual benchmarks, **using Adobe Dimension CC instead of conventional methods of achieving comparable results was over five times faster**.

### Executive Summary

▷ This report presents benchmarking data comparing **design visualization with Adobe Dimension CC** with techniques using photo-compositing, vector illustration, as well as professional studio shoots.

▷ Based on the data of this research, **Adobe Dimension CC is on average over five times faster** than other methods producing comparable results.

▷ Integration with Adobe Stock **significantly expands the creative potential of Adobe Dimension CC.**

▷ The use of CC Libraries **provides tight connection to design elements in Photoshop CC and Illustrator CC**, and can **significantly speed up collaboration**.

### Key Benchmark Results: Average of 7 Workflow Benchmarks

With Adobe Dimension (15,90%)

Without Adobe Dimension (100 %)

**Pfeiffer**
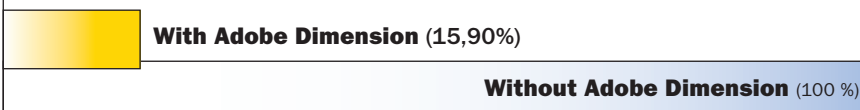**Consulting**
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Chart based on the average of 7 different workflow scenarios per solution.
A total of 262 individual benchmark measures were taken.
**Reference value:** Average time when working with conventional methods. **Shorter is better.**

# Keeping it Simple:

# How Dimension Redefines 3D Visualization of Graphic Design

## 3D visualization for graphic designers

**What exactly is Adobe Dimension CC?** The question bears asking, since Dimension combines elements from several well-established domains of creative software, yet doesn't belong squarely to any one of them. In a way, Dimension establishes a new category of creative software, intended **not to replace existing applications, but to complement them in a way that is approachable for graphic designers and other visual artists** who have neither the time nor the inclination to learn complex new programs that only provide productivity gains after a considerable learning curve.

Broadly speaking, one could describe Dimension as a tool for design visualization that **literally in a few minutes allows designers to create photorealistic 3D representations** that would be significantly more difficult and time-consuming to produce using other methods.

To do so, Dimension allows the user to position 3D models in a virtual space, to apply materials, place designs as decals on them, combine these objects with background imagery in a realistic perspective, and render them, integrating lighting from the background image and realistic soft shadows. In brief, what Dimension adds to the graphic designers toolbox **is the ability to quickly create scenes and product representations that are very hard to achieve with 2D tools.**

## Major Points

▷ Adobe Dimension CC **brings sophisticated photo-realistic design visualization** to the graphic arts community.

▷ Integration with programs such as Illustrator CC and Photoshop CC through the use of **CC Libraries speeds up the design process and significantly increases the productivity in a team workflow.**

▷ Cloud Rendering (to be introduced in a future release) **significantly speeds up the rendering process** (see sidebar), and reduces the processing requirements of the local workstation.

▷ Integration with Adobe Stock **makes thousands of 3D assets available directly from within Adobe Dimension CC.**

*How can images created with Adobe Dimension CC hold up against professionally produced studio shots? To answer this question, we conducted a real–world benchmark, and compared both the quality of the final output and the time it took to produce both images.*

*Here are two details from the images we produced. For more information please refer to "Rethinking Product Shots: Productivity and Creativity of a Virtual Studio" on page 5.*

## Cloud Rendering

Photorealistic rendering can be extremely computing-intensive and tie up the average graphics workstation for hours. To alleviate this issue, a future release of Adobe Dimension CC will offer an alternative option: Cloud Rendering. This will allow users to upload a rendering operation to the cloud while they continue working on the project at hand.

Rendering times are dramatically reduced by using Cloud Rendering: **In our benchmarks of a prerelease version of the feature, rendering times were accelerated by almost 600%.**

While Cloud Rendering can be triggered directly from within the application, a web-interface to the service allows users to manage renders. Dimension files for rendering can be accessed directly from the Creative Cloud folder on the local computer, and images are automatically synced to the local computer when the render process is finished.

## Key assets for productivity

**Simplicity:** Dimension is highly approachable, and allows users to get up to speed and productive in a very short time, **since the program provides a wide variety of models, materials and, most importantly, professional lighting pre-sets.**

**Quality of output:** Dimension shields the user from the considerable complexity inherent in photo-realistic rendering engines, and **consistently produces images of considerable sophistication without requiring any knowledge of complex parameters.**

**Integration with CC Libraries:** Dimension integrates with other Creative Cloud apps through CC Libraries, speeding up exchange with applications such as Photoshop and Illustrator. As an example, **a logo design from Illustrator can be placed directly on a 3D object by dragging it from a shared library** rather than having to save it to a different file format.

**Integration with Adobe Stock:** Adobe stock offers a constantly growing set of assets optimized for use with Adobe Dimension CC, 3D models (complete with textures), photorealistic materials, as well as a variety of lighting presets. Assets can be downloaded from the web, or saved to a CC Library accessible in Dimension. In addition, **Dimension also allows users to search for Adobe Stock assets without leaving the application.** (See also: "How Dimension Integrates with Adobe Stock" on page 7)

## Real-World Case-Study 1: Simple Branding Visualization

**Adapting stock vector template:**
13 min. 58 sec.

**Compositing with stock image:**
28 min. 56 sec.

**Make paper mock-up:**
28 min. 34 sec.

**Adobe Dimension CC:**
2 min. 7 sec.

**About the assignment:** The basic approach to all the benchmarks in this project was essentially the same. We tried to put ourselves in the shoes of a designer who has finished the design of a logo, all that needs to be done is demonstrate how it works once applied to a real-world object - in this case a shopping bag. There's just one problem: the deadline approaches, we have to produce a credible illustration as fast as possible.

To achieve that goal, we executed the assignment in with three different methods: **adapting a stock vector template** using Adobe Illustrator, **compositing the logo with a stock photo of a shopping bag** using Photoshop, as well as **producing a paper mock-up** and photographing it with equipment and background available in a typical designer's studio. For Dimension we used one of the available models and materials, and dragged the logodesign onto the bag from a shared library.

**The timings shown here include all the steps necessary to achieve the illustrations on the left**, including finding the right assets on Adobe Stock, as well as all the steps necessary to adapt the design and produce the final image. The benchmark times do not include some of the most time consuming steps in such a process, such as experimentation with different options in Illustrator or Photoshop, or sourcing materials such as the shopping bag, or the transparent labels necessary for the mock-up. In other words, in real life, a designer could well spend considerably more time.

# Real-World Case-Study 2: Placing a Label on a Bottle



Compositing with stock image:
**13 min. 38 sec.**

Make paper mock-up:
**20 min. 7 sec.**

Adobe Dimension CC:
**4 min. 24 sec.**

**About the assignment:** Our second real-world benchmark consisted in **producing a credible visualization of a label-design on a wine bottle.** In the first case, we used Photoshop's Warp function create a realistic deformation of the label, using a stock image of a bottle. The second option we measured was to create a mock-up with a real wine-bottle and a printed label.

For Dimension we **downloaded a 3D model of a wine bottle from Adobe Stock** and placed the Label as a decal.

Finding and downloading the right asset on Adobe Stock is included in the overall results.

# Benchmark Case-Study 3: Populating Background Images

**About the assignment:**

For our third real-world case-study we chose the task of **creating a realistic scene to display a three-dimensional box-design with a wrap-around design-element** in an appropriate setting.

The same background image was used both for compositing the image and for the Dimension scene. To create the box we looked for a stock-photo of a blank box. Unfortunately, none of the images we found fitted the perspective. This meant that we could not simply use Photoshop's Warp feature. To produce the image on the right, we needed to first reconstruct a flattened box, and then reconstruct it using the perspective planes in Photoshop. (The timing for this benchmark **does not include the failed attempts to distort the original box image** by simply warping it; we only included the time necessary to execute the image once we had established the proper methodology.)

For the Dimension scene, we used one of the standard objects available in the program, but we searched for and downloaded a corrugated cardboard material from Adobe Stock directly from within the application.



Compositing with stock image:
**24 min. 23 sec.**

Adobe Dimension CC:
**5 min. 36 sec.**

# Rethinking Product Shots:

# Productivity and Creativity of a Virtual Studio

## Major Points

▶ Adobe Dimension CC makes virtual studio functionality available to graphic designers and visual artists **without requiring a steep learning curve.**

▶ Photorealistic rendering including **photo-realistic reflections and smooth shadows are produced automatically,** without any special knowledge of the user.

▶ The **lighting presets available in Adobe Dimension CC emulate many common studio lighting solutions** and can be applied and adapted very easily.

### Democratizing the virtual studio

The notion of a virtual photo studio has been around for a long time. In fact, many of the numerous 3D modeling and rendering applications on the market emulate exactly that: a three-dimensional space, in which scenes can be built and lighting can be set up in extremely sophisticated ways. Even the optical properties of a camera are emulated to an impressive degree. **But photorealistic image creation comes at the cost of considerable complexity which puts it out of reach for casual users.**

### Putting Adobe Dimension CC to the test

Dimension aims to bring some of the virtual studio functionality to the graphic design community. Under the hood of the program is an extremely powerful rendering engine, but conceived in a way that it shields the user from the dozens of parameters a user needs to master in order to produce a professional looking image. Dimension doesn't aim to be a modeling application. Instead it provides an easy to understand environment that allows for creative experimentation in ways that were unavailable to graphic designers before.

**But how good a virtual studio is Dimension?** Can it hold its own when compared to the images produced by a professional photographer in a studio environment, not only in terms of efficiency, but also in terms of image quality ? **That's what we tried to find out...**
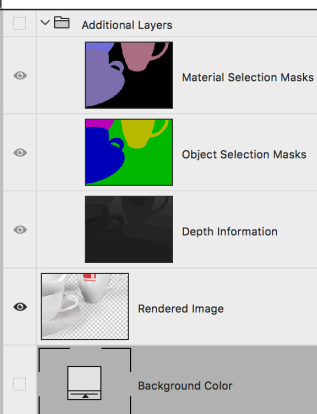


*One of the most interesting features of Dimension in terms of workflow integration is the file structure of the rendered files the software produces.*

*In addition to the actual pixel data, Dimension's Photoshop files **contain several additional layers that can by invaluable when further working with a Dimension image,** corresponding respectively to material selections, object selections as well as depth information, stored as a gray scale mask layer.*

*Most importantly, **Dimension separates the objects from the background, allowing the user to substitute a different background for the one used, while retaining transparent drop shadows,** as can be seen on the illustration on the left.*

Studio Shoot: **44 min. 29 sec.**



Adobe Dimension CC: **11 min. 53 sec.**

In order to properly assess how Adobe Dimension CC compares to the productivity and image quality of a professionally produced studio shot, **we worked with a professional photographer with many years of experience in product photography.**

The scene we chose was a set of tableware with branding applied to all elements in the scene. We let the photographer use his studio-lighting and his experience to set up the shot, fine-tune the arrangement of the objects as well as the lighting set-up. and shot the picture with a professional 50MP camera connected to a computer. The branding on the tableware was applied using transparent vinyl labels prepared in advance, which we cut out and applied prior to the shoot.

**We individually measured the time necessary for every phase of the process** (set-up of background, lighting, arrangements objects to be shot, etc.) **but we did not include the down-time between the different phases of the shoot.** (In real life, studio shots can take quite a bit longer than the time necessary to complete every step.)

To recreate the scene in Dimension, we used assets found on Adobe Stock, and arranged them in similar way to the studio shot. **To create the proper lighting, we used one of Dimensions standard lighting pre-sets. The soft shadows in the scene, very similar to the ones of the studio shot, were rendered automatically,** and did not need any intervention on our part.

In addition to the shoot presented here we also executed two other studio scenarios (a simpler scene with two objects, as well as a green-screen shot for compositing the scene with a background image. Productivity of these additional shots was consistent with the results shown here.

# A Question of Assets:

# How Adobe Dimension CC Integrates with Adobe Stock

▶ Adobe Stock offers **thousands of 3D models, materials and lighting set-ups** optimized for use with Adobe Dimension CC.

▶ The availability of a wide range of optimized 3D assets **significantly extends the creative potential of Adobe Dimension CC**

▶ 3D assets from Adobe Stock can be downloaded from a web-browser, or **sent directly to the user's Library panel.**

▶ Tight integration with Adobe Stock makes it possible **to search for the appropriate 3D asset without leaving Adobe Dimension CC.**

### 3D assets for Adobe Dimension CC

**For an application like Dimension, easy access to 3D assets is absolutely vital.** While Dimension comes with a good cross-section of objects, materials and lighting presets, designers very likely will need a wider range of options to get their job done. It is important to note here that there is a lot more technical complexity to 3D assets, than, say to photographs.

Of course there are many on-line resources offering 3D models for download, but using them can be unpredictable or even frustrating at times. That's why from the get-go, Adobe Stock is an important part of Dimension, **offering, at the time of this writing, well over four thousand 3D assets:** thousands of models and materials, as well as over 300 lighting environments.

### Optimization and Integration

Two aspects set the 3D assets available on Adobe Stock apart from the vast majority of models and materials that can be found on the web. **One key aspect is optimization for Dimension.** This applies for models, but can be even more crucial so for materials and lighting presets.

Finally, there is integration. **Being able to access 3D assets in the most streamlined way is an essential part of overall productivity;** the fact that 3D assets get delivered directly to the CC libraries pane in Dimension speeds up the use of these assets significantly (See sidebar below.)

## Adobe Dimension CC and Adobe Stock: It's All About Integration
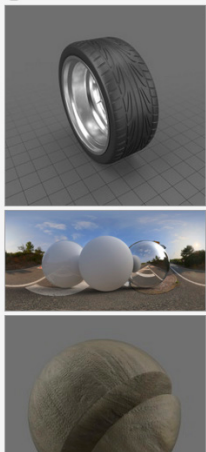
Access to 3D assets can be complicated. **Adobe Stock offers a wide range of objects, materials and lighting presets that significantly expand the potential of Adobe's scene visualization tool.** (Image on the right.)

But it is the integration with Dimension that is one of the key benefits: Assets don't need to be downloaded but can be sent directly to a CC Library. And **Dimension can search for assets from Adobe Stock directly from the program's toolbox.** (Image on the left.)
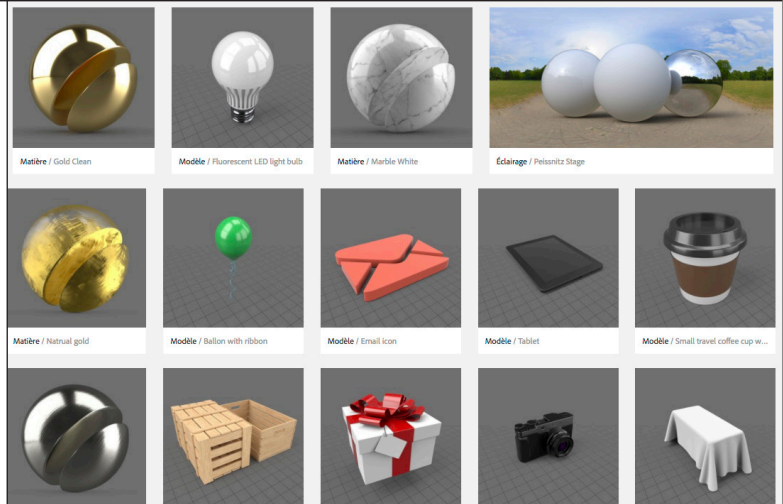
# Methodology

**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 design the benchmarks

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 institute and benchmarking operation focused on the needs of publishing, digital content production, and new media professionals.

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