Visual & Virtual
Configure-Price-Quote (CPQ) Report

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Visual & Virtual CPQ Report
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About this Report

The use of Configure-Price-Quote (CPQ) tools for the sales process continues to increase. This is true for all kinds of products, large and small, expensive and cheap as well as common and exclusive. One way to gain and hold the attention of a CPQ User is to visualize the product while it is configured. This is powerful because it provides an emotional attachment for the user to their custom configured product. The available visualization aids run the gamut from simple 2D to very cool 3D images and all the way to state of the art immersive Virtual Reality (VR) technology or to mix real environments with virtual environments afforded by Augmented Reality (AR) technology. This offers new and interesting ways to present a product for current visual CPQ customers while it also challenges CPQ vendors to find innovative ways to stay ahead of their competition.

The important question that all CPQ vendors and their customers' need answered is, "do these visual additions to CPQ indeed make a difference to the bottom line, and at what cost?"

We at Novus CPQ Consulting wanted to find the answer to this critical question so we surveyed ten Configure-Price-Quote (CPQ) vendors and sixteen of their customers to discover:
- the role product visualization plays in CPQ Solutions, now and going forward
- the visualization technologies that are most promising for improving CPQ productivity and efficiency
- the expectation of CPQ vendors and customers from visual and virtual CPQ Solutions
- the Key Challenges for CPQ vendors and customers to adopt 3D CPQ Solutions
- the maintenance requirements for visual and virtual CPQ Solutions

Report Methodology

To determine the answers to the above questions, we researched information for various visualization techniques used in CPQ (2D, 3D, Virtual Reality, Augmented Reality). We prepared and sent survey questionnaires to leading CPQ vendors and their customers and conducted interviews with each of them. This report is the culmination of our analysis and evaluation of the data thus received.

6 CPQ Vendors from
North America participated

4 CPQ Vendors from
Europe participated

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Executive Summary

The Sales Process for many products is going through a fundamental transformation where the use of ecommerce websites for sales is not only commonplace but also essential. Buyers custom-configure a product and make the purchase decision at a time and place of their choosing without the benefit of a sales person by their side. The addition of images and pictures to the configuration process in Configure-Price-Quote (CPQ) tools greatly simplifies the sales process for all users of CPQ tools. Note that this also includes Sales and Channel Partner Teams.

The need for product visualization is not new and while in some cases static images may be good enough for customers, mature technologies like 2D and 3D have been used for this purpose for a while now. Today newer technologies like Virtual Reality (VR) and Augmented Reality (AR) have become available and some CPQ vendors and their customers determine how they can best use them.

While 3D, VR and AR certainly bring with it a "cool" vibe; each of these technologies has its unique benefits and challenges. CPQ customers without visualization capabilities are pushing forward with more visual capabilities and those who already have visualization capabilities are exploring ways to move up the chain of visualization technologies from 2D to 3D to VR/AR. All along, CPQ vendors are upgrading their CPQ tool offering to keep up and stay ahead of the competition in the visual and virtual CPQ markets. While they push forward, the important question that all CPQ vendors and their customers need answered is, "do these cool visual additions to CPQ indeed make a difference to the bottom line, and at what cost" . For CPQ vendors it is important to understand how big the visual and virtual CPQ market is. CPQ vendors and customers want to understand for which industries and products these offerings may work. To find the answers, we at Novus CPQ Consulting, Inc. surveyed and interviewed several leading CPQ vendors and their customers.

Please note: In this report, the term "vendor" is used for the provider of the CPQ tools; "customer" for the customer of the vendor who have products to sell and "end-user" or "buyer" to denote the person who uses the CPQ tool to make the purchase. We also use the term "visualization" to include both visual (2D, 3D) and virtual (VR, AR) technologies.

Here is an overview of our research

1. Top Findings:

- While the majority of new CPQ customers do not require visualization, more customers have started asking for it and existing customers are adding visualization to their CPQ solution at a rapid pace.
- Use of 2D and 3D visualization in CPQ is well established with confirmed benefits for customers while use of VR and AR for CPQ is still in an early experimental stage. It is also worth noting that while 2D is considered yesterday's technology by some vendors, it still has the most users for most customers.
- Many Visual & Virtual CPQ vendors expect strong growth for VR and AR as well as 2D and 3D solutions
- Some industries consider the move to 3D and potentially AR/VR as critical since they expect that this will become the new standard.
- Size of visual & virtual CPQ Market is unknown
- A range of devices is used for product visualization from larger powerful desktops to portable devices like tablets, laptops and smart phones to specialized hardware for VR and AR.
- VR Tools are mostly used in Sales Offices that have all the required equipment. VR Hardware is more advanced than AR Hardware. The day-to-day use of VR (Example: HTC Vive, Oculus Rift) and AR (Example: MS HoloLens) equipment is rare.
  Many customers also tie in these visual images throughout their ERP (Enterprise Resource Planning) system for an efficient and error free order fulfillment of the configured product greatly enhancing the customer satisfaction rate.

2. Opportunities:

- Expect more visual solutions (2D, 3D) on ecommerce Websites to attract new users (Example: Millennials).
- Education for visual & virtual configuration tools is insufficient for both vendors as well as their customers.
- Most customers mentioned that they did not find much online information for visual & virtual CPQ Tools. Once they decided on a CPQ vendor they got (almost) all information from them exclusively. This model will need to change to become scalable. This may be a business opportunity for education providers.
- Every industry that benefits from a visual product inspection may benefit from using a visual configuration tool. To see a list of industries that currently use visual configuration tools see page 23. For ROI information see page 28.
- Business Opportunity for companies to develop an industry standard service, that allows easy and fast 3D CAD model creation that is ready to import in any CPQ tool.

3. Challenges:

- It is potentially a large effort in time and money to build a visual CPQ solution. This means that implementation costs for a visual CPQ Project can be 20-30% higher than for a non-visual CPQ Project. Some participating vendors mentioned for example that virtually created environments would not look as good as real environments any time soon.
- While some customers mentioned that older generations of business users were reluctant to use newer technologies. See "Opportunities" paragraph above.
- While customers are very confident of the benefits of visualization in their CPQ tools, measuring ROI is challenging for the majority. It is important to note that all participating customers (from large global Enterprises to SMB Businesses) felt confident that the investment paid off through increased sales and cost savings (Example: prevention of configuration errors resulting in internal time and money savings by eliminating the costly re-dos and thereby increasing customer satisfaction.). Participating customers expect strong growth from Retail, Furniture, Apparel and Manufacturing Industries (Example: up to 25% of manufacturing companies may benefit from Visual & Virtual CPQ)
- Adoption of virtual CPQ tools (VR, AR) will become more mainstream when available hardware becomes better and cheaper and more standardized (Example: users can use mobile devices instead of a headset or glasses).

What is Visual & Virtual Configure/Price/Quote (CPQ)?

Configure-Price-Quote (CPQ) visualization is the graphical display of a product to the user on a desktop, laptop, headset or any mobile device. The product display occurs using visual techniques like 2D, 3D or virtual technology like Virtual Reality (VR) or Augmented Reality (AR).

To be complete we need to mention Mixed Reality. Mixed Reality refers to all possible variations and compositions of real and virtual objects. We do not cover Augmented Virtuality or other Realities/Virtualities but if you want to learn more about that go here or read more in "Infinite Possibility – Creating Customer Value on the Digital Frontier" from Pine II, B. Joseph and Kim C. Korn.
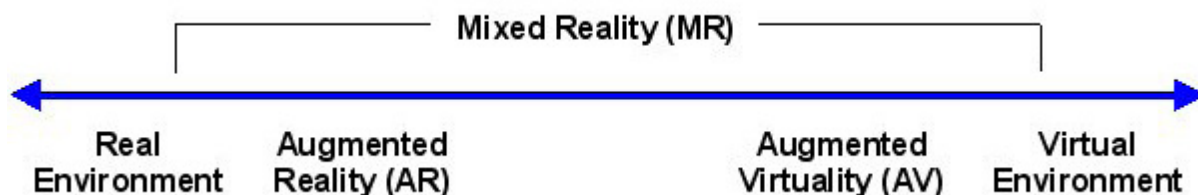
Note: Simple definitions for these terms follow this section while the details are included later in the report. These techniques are used in CPQ tools to simplify the customization of physical products for an enhanced user experience where the user "sees" the product they are buying through all the steps of configuration of that product. Once the product is configured the visual product image is connected to the quote. Many customers also tie in these visual images throughout their ERP system for an efficient and error free order fulfillment of the configured product.

Brief overview of techniques used in Visual & Virtual CPQ (Definitions and Examples)

The graphical display of the product during the configuration step occurs using 2D, 3D, VR and AR techniques. A brief introduction to these techniques is included below.

- ## 2D

2D stands for two-dimensional. A 2D drawing (or image) is any computer-generated drawing or image that has two dimensions like width and height (X and Y axis).

These drawings or images can be created with computer-aided design (CAD) Software like Autodesk, Solidworks, PTC or without CAD software by using photos. 2D drawings (or images) are typically used for simple products or when a customer has special requirements (e.g. large floor plans). Many vendors use 2D models to attach product visualizations to the quote.
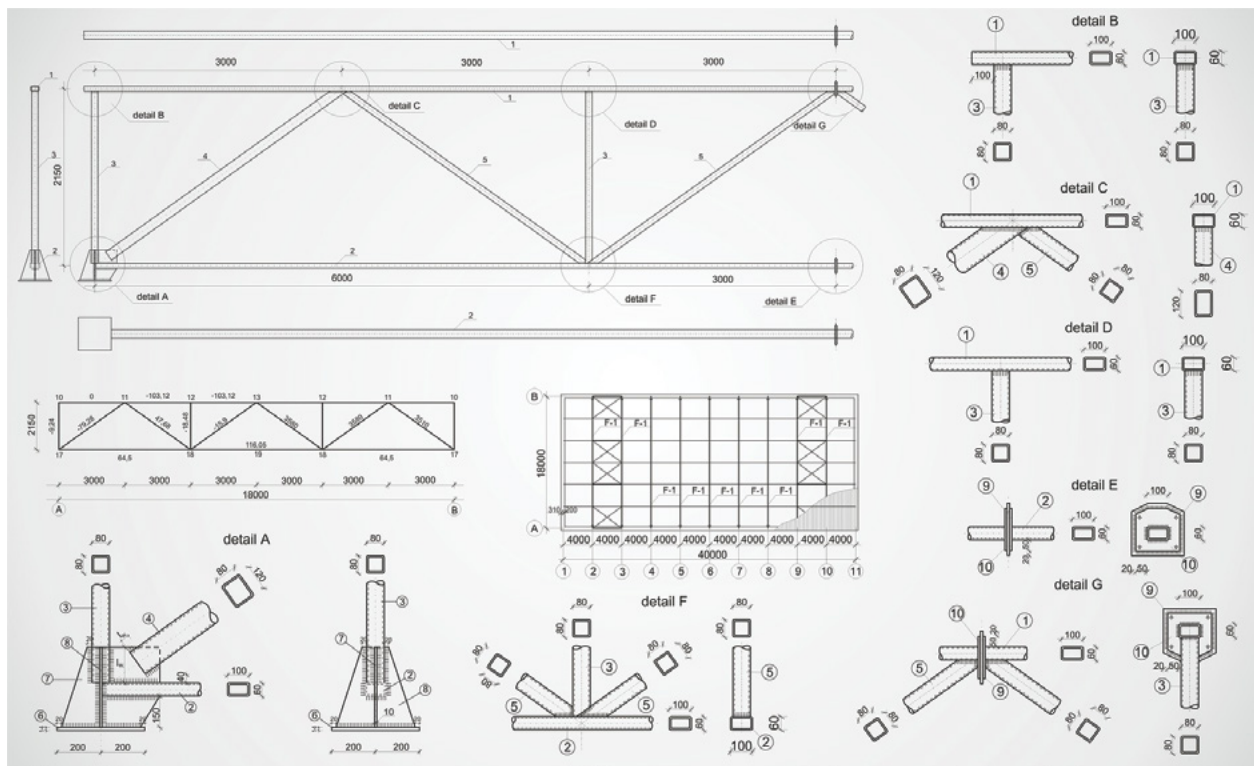
3D

3D stands for three-dimensional. A 3D model is any computer-generated model that has three dimensions such as width, height and depth.

These models can be created with CAD software like Autodesk-Inventor, Solidworks, PTC or without CAD Software. 3D Models are typically used for more complex products or when multiple product views and interactive product behavior as well as product animation are important.

● Virtual Reality (VR)

Virtual reality is a completely artificial, computer-generated environment that is presented to the end-user via a headset creating the visual impression that the presented environment is real. The user has an immersive experience with the product that he is buying. Sometimes another headset is used for sound to enhance the visual experience. To control certain elements in the Virtual Reality environment hand controllers may be used.

● Augmented Reality (AR)

While virtual reality is a completely artificial environment, augmented reality mixes a user's real environment with an artificial environment in real time. Augmented Reality is created using mobile devices such as laptops, tablets and smart phones as well as in dedicated devices like Microsoft HoloLens. A key advantage of dedicated AR devices is that they allow hands free operation.

How big is the Visual & Virtual CPQ Market?

As Configure-Price-Quote specialists, we notice that visualization capabilities are still considered a niche in the overall CPQ Market.
Separate reports and predictions are available for
1. The growth of the overall CPQ market, and
2. The growth of the VR and AR market

No Report is available for the growth of the overall CPQ visualization (2D, 3D, VR and AR) market.

1. Gartner predicts in this report that the CPQ Market will grow 20% annually through 2020

2. The growth forecasts for Virtual and Augmented Reality differ considerably between different market researchers, the general consensus is that the growth will be substantial, which means that the percentage growth will be in triple digits (at least) until 2020 and beyond.

- In this IDC report the worldwide revenue for Augmented and Virtual Reality is forecasted to grow from $5.2 billion in 2016 to $162 billion in 2020.
- In this Digi Capital report the expectation is that worldwide revenue will be $120 billion in 2020, where $30 billion is expected from Virtual Reality and $90 billion from Augmented Reality.
- This Forbes report states that Goldman Sachs is predicting a $80 billion revenue market in 2025, with $45 billion from Hardware and $35 billion from Software Sales.

In this report, we examine what impact this enormous growth in visualization capabilities is expected to have on Configure-Price-Quote (CPQ) Solutions and what the customer should expect while embarking or growing in his visual and virtual CPQ journey.

Note: The full report contains the following additional information and can be purchased at

- Journey of the typical customer into visual and virtual CPQ
- Different ways of adding visual experience in CPQ Solutions
  - Use 2D only (Basics, Key Challenges, Training, Maintenance)
  - Use 3D only (Basics, Key Challenges, Training, Maintenance)
  - Use a combination of 2D and 3D
  - Key takeaway of 2D vs 3D decision
  - Virtual Reality (Basics, Key Challenges, Training, Maintenance)
  - Augmented Reality (Basics, Key Challenges, Training, Maintenance)
- Planning budget for visual & virtual CPQ Solutions
- Which industries benefit from CPQ visualization Solutions?
- CPQ vendors with visual & virtual capabilities
- Where can customers and prospects learn more?
- What Return on Investment (ROI) for CPQ visualization solutions can you expect?
- Future trends to look out for

About Novus CPQ Consulting, Inc.