

Immerse yourself in the automotive world of tomorrow

By Dora Lainé



Courtesy of PSA Peugeot Citroën - Stéphane Meyer

Key figures

- **3,188,000** cars sold worldwide
- **196,000** employees worldwide
- Europe's second largest carmaker with **14.5%** of the market
- Environmental leadership: the only European carmaker in 2009 to have sold almost **one million** vehicles emitting less than 130g km of CO₂
- European leader in light commercial vehicles, with market share increased to **22.4%**

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3DVIA offers an innovative approach to the creation and delivery of information that enables anyone at any skill level to communicate their ideas in 3D. Breaking away from traditional 2D environments, 3DVIA solutions immerse users into lifelike experiences that allow a more natural interaction for the most vivid perceptual experiences and understanding.

The active community of over 190,000 3DVIA enthusiasts includes enterprise professionals, graphic artists, and programmers alike – each with access to a dynamic suite of applications to rapidly create and deploy interactive 3D applications. This includes cutting-edge technologies such as virtual reality, augmented reality, gaming technologies, motion capture, and more.

Offering continuous innovation in areas of simulation, documentation, gaming, and immersive virtuality, 3DVIA software solutions realize Dassault Systèmes' vision to provide the ultimate lifelike experiences. With applications supporting technical documentation, product configuration, training, marketing, simulation, visualization, social media development, and more, 3DVIA is making an impact on how users communicate and experience products in life.

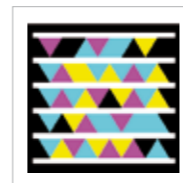
The benefits are undeniable. Businesses produce content faster and deliver it with greater impact. Developers prototype, develop and publish their 3D applications more rapidly. Customers better explore products for a richer understanding and purchasing experience. www.3dvia.com

Immersive virtuality can be used to study the best task sequence, for example, when welding or when installing car seats and if the operator has proper visibility when performing these tasks. Different possibilities can be virtually tested while ergonomics specialists analyze the best task sequence necessary for this type of operation. 3DVIA Virtools can also be used to train technicians on how to perform certain tasks safely and efficiently such as welding. "Using virtual reality to explain optimum task sequences helps save time and provides operators with the means to practice these sequences before doing the actual welding," said Masfrand. Finally, using a peripheral, such as a HAPTIC arm, PSA can even simulate the force felt by a person when lifting equipment.

Using 3DVIA Virtools' virtual reality technology to conceive its designs helps PSA Peugeot Citroën shorten vehicle development cycle time by, for example, reducing the number of physical prototypes, which are expensive and take time to build. "Virtual prototyping accelerates the decision-making process and enables us to explore more design possibilities and to make the right choices - and to virtually touch the car of tomorrow," concluded Stéphane Masfrand.

to the driver's perception of the car while in the driver's seat such as ergonomics and the feeling of comfort, overall impressions such as roominess, windshield visibility, reachability of controls and buttons, and whether drivers can see details that they should not see, such as cables. "Most details that can diminish the perceived quality of the product is analyzed here. The immersive experience enables designers to verify these aspects very early in the design process," explained Masfrand.

Another scenario aims to improve the ergonomics of operator work areas so that employees can work comfortably with few physical constraints.



Use your smartphone and touch the future with the CRV

3DVIA Virtools is an integral part of PSA Peugeot Citroën's CRV (Centre de Réalité Virtuelle or Virtual Reality Center) at the Automotive Design Network, located in Velizy, France. This virtual reality center enables designers and engineers of the group's future products to immerse themselves in the virtual 3D projection of a future car and its surroundings and to interactively test design alternatives before building any physical prototypes.

The Automotive Design Network (ADN) resides in a 70,000 square-meter, three-floor building. It can accommodate up to 1,100 people from all of PSA Peugeot Citroën's styling studios and innovation teams and is entirely dedicated to automobile design. The CRV houses three systems - the immersion room or CAVE™ (Cave Automatic Virtual Environment), a stereoscopic screen, and a holobench. Thanks to stereoscopic projection, designers can perceive reality in 3D and on a scale of 1:1. "The designers can put themselves in a physical driver's seat or in an operator's post in the factory as they would in the real world," said Stéphane Masfrand, Virtual Reality Center Manager at PSA. "By physically turning the steering wheel, for example, they can interact with the virtual car using peripheral equipment such as glasses that enable to see

in 3D, and sensors, which are located on their body. They can see how the car and its surroundings react via 3D simulation thus providing our designers with a lifelike experience in the first person."

EXPERIENCE THE VIRTUAL AUTOMOBILE

3DVIA Virtools is used to develop and deploy a wide variety of industry-specific immersive applications at PSA Peugeot Citroën such as design reviews, assembly/disassembly applications, and collaborative project reviews. Thanks to the versatility, accessibility and performance of 3DVIA Virtools for virtual reality applications, PSA Peugeot Citroën has, over the years, developed its own powerful VR applications, which have helped them better manage their production process and enhance reactivity.

VIRTUAL REALITY HELPS IMPROVE DRIVER AND OPERATOR EXPERIENCE

Two of the scenarios addressed using 3DVIA Virtools are review of the digital mock-up and management of operator tasks on the assembly line. The first is related

