THE EVOLUTION OF ECOMMERCE, VISUALIZATION AND THE MODERN RETAIL EXPERIENCE

With recent advancements in technology, there has been a migration away from traditional 2D retailing towards an immersive and interactive ecommerce experience. Mail order catalogue shopping, first popularized over a century ago by industry pioneers Sears, Tiffany's, Montgomery Ward, and Eaton's, among others, transformed the retail and marketing landscape by providing product accessibility to the masses and launching targeted direct marking.

This model inevitably became commonplace, with an evolution towards online catalogue accessibility that we have come to know as ecommerce. We are, however, on the verge of a new transformation where we are seeing traditional retail models being replaced by immersive online commerce, featuring virtual representations of products; high-fidelity 3D product models that enable real-time interaction; and augmented and virtual reality experiences.

These advances in the modern retail

experience benefits customers and retailers alike; customers receive added convenience, a more engaging retail experience, and the ability to make a more informed purchasing decision, while retailers reap the benefits of cost savings, reduced inventory and showroom displays, and greater incentive driving potential customers to make purchases.

The continual evolution of the modern retail experience is made possible through the alignment of retailers and technology providers, as multiple players are joining forces to work together toward the advancement of technology to overcome common challenges. This includes open-source efforts coordinated through the Khronos Group, where Autodesk and other partners have come together to create standards and guidelines accelerating the advancement of modern retail experiences through organized, open development, known as 3D Commerce.

DRIVING DEMAND FOR 3D COMMERCE

The origins of 2D retail are rooted in the rise of the aforementioned mail order catalogue at the turn of the 20th century. At the core of this trend was access to information, providing consumers with convenience and the ability to make purchase decisions based on product availability and brand reputation. Today, access to information is democratized via the Internet, where consumers can go and find detailed information and reviews for products and retailers online. On the ecommerce front, opening up a digital storefront through the Internet is more accessible than ever with platforms like Shopify and Etsy. Extensive access to information paired with technology is driving innovation in the ecommerce space.

Industry advancements are creating new types of customer experiences that set retailers apart from the competition.

Consumers benefit from a democratized 3D retail experience that is both convenient and compelling, while retailer advantages focus on reduced cost and increased speed and agility. A shortened design to retail process means that a product catalogue is ready before any inventory is even manufactured. Through "virtual twins," retailers are able to instantly swap out materials, fabrics and color choices to represent different product options.

This process previously required retailers to build a physical representation with different product options, necessitating a large amount of physical space and time. Today, lower overhead optimizes costs, as retailers no longer need to distribute inventory to every retail point, and inventory can now be made to order or stored in one central location. Delivering a compelling experience through ecommerce also increases customer satisfaction and leads to more purchases, while the rise of "virtual twins" opens the door to new opportunities in retail marketing via dynamic content displays, digital fashion shows and more.

> **Growth in modern ecommerce also leads to an uptick in more consistent employment opportunities for artists, who are able to repurpose their talent in new arenas**

Looking to the future, the industry is in pursuit of innovative and interactive retail experiences that captivate and entertain consumers while shopping — and even after a purchase transaction is complete. While the challenges of today are about delivering a compelling and convincing representation of the product, the challenges of tomorrow will focus on differentiation through memorable marketing and retail experiences.

FROM PHYSICAL TO DIGITAL: THE NEW PRODUCT LIFE CYCLE

Today, the majority of products are digitized from existing examples, including scans or reconstruction from photographs. To maximize efficiency, the industry needs to transition away from this method of virtualization and adopt digital twins from day one of the product life cycle. As more products enter the cycle in digital form, technology will be required to boost the fidelity of the virtual versions. Visualization will be key, as the industry moves past a design-to-make way of thinking and into the reality of design-to-retail. Moving ahead, the industry is seeking new ways to optimize the creation of digital products, including automating processes and reducing redundancies.

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CHALLENGES AND OPPORTUNITIES FOR GROWTH

The COVID-19 global pandemic has created an even greater need for innovative retail experiences as consumers seek robust ecommerce platforms to make informed purchasing decisions from the safety of their homes. The importance of 3D Commerce is greater now, more than ever. Companies like Wayfair and Shopify have experienced exponential growth over the last number of quarters, with stock prices that have soared. Growth in modern ecommerce also leads to an uptick in more consistent employment opportunities for artists, who are able to repurpose their talent in new arenas. Skills that artists have invested in for film, television, and games can be applied to new real-time ecommerce experiences, driving demand for top talent and ultimately leading to more opportunities and diverse employment experiences for artists.

Opportunities for growth are also driven by industry challenges, including the demand for consistent visualization to optimize models across a range of viewing platforms. Today, many models are made in a specific content creation tool for a specific platform, while other models lack optimization for real-time 3D interaction. These inconsistencies may contribute to a negative user experience and potentially impact customer purchasing decisions. Consistency with 3D models is an issue because there are many players in the space, and with technology democratized, smaller players are now able to seize new opportunities. Finding a common thread and keeping things organized is a challenge in itself for manufacturers, retailers, and technology provides alike.

To aid in the advancement of 3D graphics technology, nonprofit organization the Khronos Group is dedicated to the development and adoption of specifications and standards. For 3D Commerce, this includes standards directly related to retail applications and ecommerce, as the industry innovates new ways to apply film, television and game engine technology to a new

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industry and market problem.

As a first milestone to establish industry standards that overcome visualization challenges, the Khronos Group has released a comprehensive set of real-time asset creation guidelines that will streamline the development of assets for delivery on multiple platforms or device experiences. These protocols will enable more retailers to outsource work, providing more opportunities for a global workforce to meet content demand. This is only the beginning, as the Khronos Group and 3D Commerce working group are actively developing other standards to solve key industry challenges.

AUTODESK'S POSITION AS A 3D COMMERCE LEADER

Autodesk is at the cusp of designing what the future of buying will look like, as new 3D commerce experiences and capabilities are enabled by Autodesk tools and extend beyond design-and-make into the retail phase of the product lifecycle.

Autodesk is working with leaders in retail who are pioneering innovative methods of engaging consumers in physical retail experiences that incorporate product digital twins. As part of these efforts, market leaders are maintaining entire divisions dedicated to the future of retail and expansive digital storefronts, and the transformation of retail experiences is absolutely something to look forward to.

Autodesk will remain at the helm of driving the future of visualization for modern retail experiences, participating in initiatives that include 3D commerce and teaming with partners to further advance the industry as new advances revolutionize how products are marketed, retailed, and purchased.

TO LEARN MORE, WATCH:

Panel: The Road to Open Standards ft. IKEA, Adobe, and Lucasfilm

Panel: Render Everything Everywhere – Hosted by Khronos Group