the marketing skills to reach consumers through a B2C business model, having grown their business in a B2B market. However, some of these "newcomers" have chosen to become production facilities only, partnering with marketing companies. The UK based Minotaur Group only began photobook production at the end of 2009 but already expects 2010 sales to be in the multi-million British Pound level. The company has developed a unique free downloadable smartphone application that lets users create an A6 (145 x 105mm) photobook with 15 photos. The photobook is completed within one working day after being received by the company.

Are "hardcopy" photobooks enough? They certainly have limitations: they can only contain photos and text., and they cannot be viewed remotely. Are we ignoring "digital" photobooks that could also include video clips, music, animation, audio/voice and even hyperlinks? The concept of creating a digital photobook that could be accessed from any digital television merely by using the remote is not new. It was suggested by CeWe Color three years ago, although it has not been commercialized because of the slow rate of adaption for digital TVs in Europe. We have been optimistically projecting that this market segment would grow rapidly, but have been disappointed by the lukewarm interest of the photo-imaging industry. Our current estimates and forecast for the market, including those CD/DVs that are made in conjunction with hardcopy photobooks, is shown in the Figure.

Hopefully, we are now being too pessimistic. However, it would
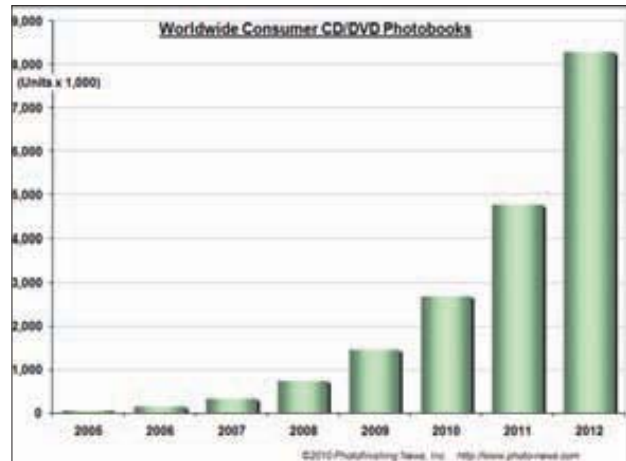
be sad to see this developing market segment migrate to the consumer electronics/entertainment companies after all the investment that our industry has made in teaching consumers worldwide how much fun it is to record their life events as a story rather than as individual pictures.

Don Franz

Immersive Imaging at Photokina in IVRPA Booth

In the 19th century, artists painted large-scale, realistic scenes on the inside of a cylinder. Standing in the middle of the cylinder, a viewer would feel as if he was seeing a distant place because the image wrapped around him filling his vision. They were called cycloramas from the Greek words cycl to circle and orama to view. Dozens of cyclorama buildings, either circular or hexagon-shaped, were constructed in cities throughout North America and Europe by the late 1800's.

Apple brought such an immersive visual experience to the computer monitor when they introduced QTVR (QuickTime Virtual Reality) in 1994. QTVR also introduced something new - virtual objects that could be rotated and viewed from all sides on a computer monitor. During the late 1990's a number of companies, including IPIX, offered immersive imaging solutions. More recently, most of the companies that had been instrumental in promoting virtual reality immersive imaging have either disappeared of lost interest in the technology.

My friend Scott Highton is based in the San Francisco bay area and was the first outside photographer brought in by Apple Computer to use, evaluate and test QuickTime VR. He was also one of the earliest photographers to work with Internet Picture's PhotoBubble technology (IPIX). In his new book *Virtual Reality Photography - Creating Panoramic and Object Images*, Scott shares his extensive knowledge about every aspect of successful panoramic and object VR photography in 24 detailed chapters. His web site, Virtual Reality Photography (www.vrphotography.com), is an online
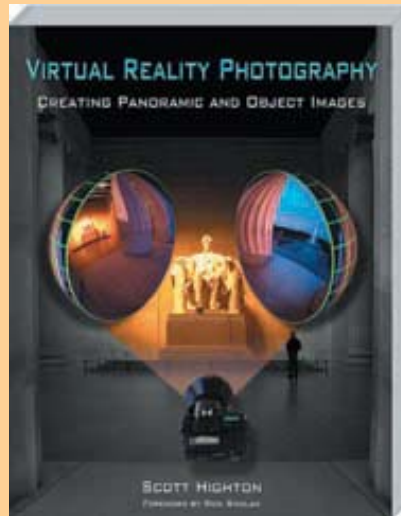
international resource for information about interactive photography, immersive imaging and photographic virtual reality (VR).

I recently asked Scott for his views on the future of virtual reality immersive imaging.

He said, "Immersive imaging and interactive VR photography have, for some time, been on the verge of explosive growth. I think that time may now be upon us. Most of the obstacles of the past - restricted bandwidth, lack of format standards, difficulty of production - have been mitigated, if not eliminated in recent years."

"Today, we are seeing the use of VR photography across a broad spectrum of commercial industries, from real estate, travel, and hospitality, to manufacturing (automotive, aircraft, boating etc.), entertainment, scientific study, and education. Software applications such as PTGUI (www.ptgui.com) and others have made the assembly of seamless VR panoramas easy enough for almost anyone to do. Panoramic image sequences for stitched assembly can be shot with almost any camera and lens combination using with VR pan heads such as those from Manfrotto (www.manfrotto.com), Nodal Ninja (www.nodalninja.com), Peace River Studios (www.peaceriverstudios.com), and Kaidan (www.kaidan.com)."

He continued, "It's an exciting time to be a VR photographer. The opportunities for use of interactive photography abound. It will be the creative visual storytellers who succeed in these markets (much like with traditional still and motion photography). There are tremendous choices available for good equipment (cameras, grip, and lighting gear), as well as software options. All the tools are out there today... it's simply up to the photographer to choose them and use them well."

You can experience virtual reality photography yourself at Photokina in the IVRPA booth in Hall 4.1 Stand A010. The International Virtual Reality Photography Association (IVRPA) represents more than 400 panoramic photographers world-wide and their booth will feature an exhibition of panoramic prints and gigapixel prints; a display of interactive VR panoramas on monitors and video projectors; as well as public workshops on VR photography given by IVRPA staff and sponsors.

Fred Shippey