Successful Convergence & Customer Satisfaction:

Meeting Market Demand For Accurate Color Across Evolving Media

datacolor

Because Color Matters

COLORVISION® by datacolor

A convergence in digital media is taking place throughout the world, a technology evolution that embraces every form of communication.

Datacolor plays a key role in this convergence – ensuring that color stays true as it moves across media and migrates to a virtual environment.

To discover how the company is uniquely positioned to deliver this benefit – and why accurate color is so critical to customer satisfaction around the world – read on.

`A Developing Digital Age

Forrester Research's recent exploration of technology trends reveals that nothing less than a digital revolution is on the way – if not already here. For corporations, the report predicts that as customer demands and globalizing competition accelerate, companies will employ digital business architecture (DBA) to keep pace. DBA will recast information technology to support rapid business change in key ways, including extending the Internet to connect the digital to the physical world and tightening companies' control of goods and assets.

On the consumer front, the same report shows that the digital home is fast becoming a reality. Broadband Internet access, a curiosity in just 0.6 million US households in the Internet "boom year" of 1998, has grown relentlessly and is expected to reach more than 63 million households in 2008. Home computer networks, with not even a glimmer of penetration in 1998, will connect PCs and other devices in more than 40 million households by 2008. Among the explosive outcomes: a collision of open IT technologies with proprietary television technologies, which will reshuffle the cable, entertainment, edutainment, consumer electronics, and gaming industries. [1]

In a similar look at the European home PC market of the future, Forrester reports that, after years of consumer disinterest and price competition, the European home PC market is increasingly moving toward a "pleasure PC" model. The researchers predict the next five years will see a gradual increase in PC ownership, hitting 62% of Western European households by 2010. [2]

Leading researchers predict the digital home is the new reality,
with pleasure PC models in 62% of Western European households by 2010.

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[1] Forrester Research, June 24, 2005, "The Seeds Of The Next Big Thing: Sketching The Fourth Wave Of Growth For The Technology Economy," by Christopher Mines with Andrew Bartels, Chris Charron, Ellen Daley, Randy Heffner, Navi Radjou.

[2] Forrester Research, March 16, 2005, " The European Home PC Market: The Updated Forrester Forecast For Home PC Ownership In Europe," by Paul Jackson with Iris Cremers and Jaap Favier.

Coloring Convergence
With Customer Satisfaction

Datacolor, a world leader in color technology, is uniquely positioned to meet a critical aspect of customer satisfaction in this burgeoning digital age - accurate color across all channels of communication.

In fact, the need for accurate color is why the company exists. Its corporate roots extend to the very beginning of the color technology industry. Datacolor's on-going mission is to design, manufacture and market color management solutions for a wide range of color management challenges. It does so with breakthrough color technology that is delivered through the world-class research and development into emerging product categories.

The company continually operates in proactive recognition of color management needs in a changing marketplace. Consider the latest reorganization of its award-winning ColorVision Digital Imaging division. It has moved from a discrete organization to an integral business unit within Datacolor's dynamic family of color management product solutions.

The division has received prestigious industry awards for the development of accurate, exceptional price to performance digital color control solutions since its inception in 2000. The award-winning ColorVision division positioned to better leverage Datacolor's thirty-five years of technological leadership. ColorVision brings to the new digital age:

- Experienced developers innovators with manufacturing excellence

- Renowned technical expertise at unparalleled service levels

- Simplified sophistication: insurance of a dynamic digital color workflow, making accurate digital color control available to everyone on every level

As a result, customers representing every conceivable market niche – from the production manager in a pan-global manufacturing operation to the director of a cutting-edge photographic studio to the consumer who purchased a high-definition TV – can experience a high degree of satisfaction in the color outcome.

Why is accurate color so critical to customer satisfaction? The answer lies in our fascination with color as well as its profound effect on emotions and buying patterns.

As a business unit within Datacolor, ColorVision benefits from a worldwide network of sales, support, research and development, and distribution and shares US headquarters in Lawrenceville, NJ, European operations in Dietlikon, Switzerland and Asia operations in Hong Kong.

A Brief History of Color

The Color Conundrum

Ever since Sir Isaac Newton verified that daylight holds all the colors in the human visible spectrum by shining light through a glass prism, we have sought to explain the extraordinary phenomenon called color. Since 1666 when Newton conducted his experiment, scientists, mathematicians, even artists, have sought to categorize and define color with varying degrees of success.

Our human response to this powerful aesthetic makes it much more than a physical reaction, Color is a mystery, a bridge between the rational and the emotional. Psychologists have long studied the profound effects of color on the psyche – and companies have leveraged the power of color to influence buying patterns.

As early as 1986, The Wall Street Journal noted the profound effect of color on consumers: "When designers at Berni Corp. changed the background hue on Barrelhead Sugar-Free Root Beer cans to beige from blue, people swore it tasted more like old–fashioned root beer served in frosty mugs. No matter that the beverage itself remained exactly the same[3]

In May 2004, researchers found that the color of a webpage's background screen affected perceived download quickness and even influenced user evaluations [4]

Self-described car enthusiasts say they are as influenced by subjective factors like color as experiential factors like handling.

In March 2005, Forrester Research conducted a survey among online vehicle buyers. Those who identified themselves as enthusiasts, or 22% of online buyers, more often rated subjective factors such as color as important to their car-buying decision as experiential factors like power and handling" with "Those who identified themselves as auto enthusiasts or 22% of online buyers, rate subjective factors, like manufacturer reputation and color, and experiential factors, like power and handling, as important to their car-buying decision more often than Indifferents do" because this statement more accurately reflects the report. Less than 46% of auto enthusiasts listed color as a somewhat important or extremely important in making their most recent vehicle purchase decision whereas 71% and 72% of auto

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[3] "The Wall Street Journal On Marketing", Ronald Alsop, Bill Abrams, p 143. Homewood, Ill.: Dow Jones-Irwin, c1986.
[4] "Waiting for the Web: How Screen Color Affects Time Perception," by Gerald J. Gorn, Amitavachattopadhyay, Jaideepsengupta, And Shashank Tripathi, Journal of Marketing Research Vol. XLI (May 2004), 215–225215.

enthusiasts listed power and performance respectively as a somewhat important or extremely important in making their most recent vehicle purchase decision. [5]

According to the information posted on one popular on-line library,
"In fashion, advertising, and presentations, color is one of the most effective tools. Psychologists have suggested that color impression can account for 60% of the acceptance or rejection of that product or service." (www.about.com. "The Psychology of Color")

Jill Morton, principal at the color consultancy group Colorcom, states it even more strongly on her website. Morton writes, "Marketing research indicates that over 80% of visual information is related to color. In other words, color conveys information. It identifies a product or a company, as well as the quality of the merchandise and much more. The right color is indeed worth a thousand words." (Color Consultation, Products & Corporate Identity, www.colorcom.com)

Challenges in Color Reproduction

Clearly, color is critical to sales success. Yet color also is incredibly challenging to capture and reproduce. Why? In manufacturing, the coloration process itself is inherently variable. Exposure to different chemicals, temperature, humidity, and sometimes machine speed can impact the final color outcome, as can the material (substrate) on which the colorant is produced. Whether it's opaque or transparent, flat or round, plastic or paper profoundly affects perception of a finished color. Any component supplier who has been given a paint chip and asked to match its color on a plastic automotive dashboard or fabric seat cover can attest to the difficulty of the task.

In the digital imaging media, the calibration among all devices – computer monitor to printer – can impact the color viewed and printed.

Then there is the human factor. The subjective way humans see and talk about color creates difficulties. We can't visualize precisely what another person means by " a warmer shade of red" And how someone actually "sees" color varies, too. Each viewer brings a different response to the same color stimulus - due to age, fatigue, color vision defects, or experience. What one person describes as periwinkle blue, another may experience as purple.

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[5] Forrester's Research Report, July 29, 2005, "Alpha Car buyers: Engaging Engine Enthusiasts." by Mark Dixon Bünger with Carrie A. Johnson, Chloe Stromberg, Sean Meyer)

The Bottom-line
Business of Color

Industry leaders recognize these color challenges, and continually look for technological solutions to meet them. During its "Color In Retail" Summit Hosted by Datacolor At New York City's Fashion Institute of Technology (FIT) in April 2005, the world's top retailers shared common, color-related concerns and explored color technology solutions to address them. Some of the major concerns included: long development cycles that lead to missed trends and opportunities; long lead times that force risky fashion predictions regarding colors and styles that sell; and urgent deadlines that result in compromised color quality.

In a 2005 survey of the same industry, Apparel Magazine found that 56% of its respondents had specific plans to purchase color management systems and services in the next 12 months.

Many companies turn to Datacolor. Consider the span of industries and applications that Datacolor has served over the past century: plastics, paint, automotive, coatings, retail, apparel, textiles,

Industry leaders across industries – including those involved in designing and manufacturing the latest fashions - value color technology for the bottom-line benefits it brings to the entire color production cycle

leather, ink, printing, paper, photography, digital imaging and graphic design and now Home Entertainment- Home Theatre.

In 2005, Datacolor launched Datacolor SPECTRUM™, an innovative family of solutions for color matching, quality control, visualization, communication, and production optimization. The products use an open platform to advance color management and communication for the way companies operate today - controlling color management activities from any location in the world.

Datacolor SPECTRUM™ also leads the way in helping companies migrate to a new era in which color is designed, created, and approved in a virtual environment. Datacolor ENVISION™ is a key offering that empowers manufacturing designers with the ability to create, manipulate and communicate "true colors" by applying them in real world simulations. With colors visible on sophisticated calibrated screens, designers have the freedom to explore and express color as emotion, aesthetics, and identity while also yielding the precise and tangible color directions manufacturers need to accurately and effectively reproduce color.

Demystifying Color

Across Digital Media [see updated All-New Product line release of February 21, 2006]

Price and complexity represented major barriers to the widespread use of color correction and management technology in the burgeoning digital media market of the late 1990s. Here, too, Datacolor led the way.

In an online survey conducted by one of the world's largest digital imaging magazine's – (Popular Photography) website www.popphoto.com with 2.2 million average monthly visitors – yielded 65,000 respondents with a 48% response rate, who identified themselves as either professional, semi professional or enthusiast photographers. This group claimed that an instrument to calibrate their monitors for viewing (editing) making and sharing photos, winning photo competitions or selling their photo's is important to them and hence a color management system is imperative for their professional and personal photography careers[6]

Datacolor has addressed the needs of these users with the ColorVision business unit's products. By combining engineering excellence and new breakthrough technologies with exceptionally user-friendly software programs, its ColorVision business unit provided early adopters with digital color calibration solutions at truly affordable prices. Since its launch in 2000, ColorVision has been dedicated to demystifying color management across digital applications and for every user level, professionals to enthusiasts.

Today, the ColorVision family of products embraces the digital workflow and makes accurate color control available at every market level. Its distinct market groups include:

- **The creative arts** – digital image-makers where color is a vital part of their success and growth: e.g. photographers, designers, graphic and fine artists, printers, animators, film & video makers.

- **Professionals** – those who require expertise in color management (Desk-Top-Production/ DTP) for their professional success and for whom digital color is important: e.g. architects, fashion and apparel designers, manufacturers; executives in corporate, marketing, advertising, publishing, public relations agencies.

ColorVision leverages Datacolor color technology expertise to develop cutting-edge products such as the award-winning Spyder2 sensor leveraged in many calibration innovations.

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[6] May 2005 issue of **Popular Photography and Imaging Magazine** HFMU.S – Hachette Filipacchi Media. Editorial "Color Calibration" go to www.popphoto.com survey. Average monthly views for May2005 – 2,210,700

- **Consumers** – the enthusiasts who are fueling the digital camera explosion and who will require more color accuracy as printing digitally in peoples' homes evolves from a luxury to commonplace.

ColorVision has addressed color management needs as they have emerged out of these fast-evolving markets – with such award-winning offerings as SpectroPRO2, Spyder2PRO Studio 2.0 and Spyder2PLUS– developed to meet the market needs of professionals involved in digital communications. Becoming known in the Photography industry as color calibration specialists.

It has done so by leveraging the dedicated high-tech experts of Datacolor. The company excels at moving its color technology, the color technology of choice for decades among industry leaders, to the creative professional and consumer enthusiast level. Bringing to market consumer products at consumer price points such as the award-winning ColorPlus.

While the Spyder2 Plus™ – *The Digital Darkroom in a Box™* - - offers an integrated hardware/ software solution for MAC and Windows environments that addresses screen and printer color accuracy, puts monitor color in sync with printer output.

"With the mushrooming digital photography and rapidly expanding home-office markets, we could not have picked a better time to introduce these products to consumers," says Levey. "Driven by award winning ColorVision technology, professional expertise is brought to consumer products at consumer price points. This is by far the hottest advancement of professional color correction tools for the consumer digital-imaging market."

Leveraging A Legacy of Leadership:
The Right Product For Every Market

Datacolor has been an innovator and leader in color technology since 1970, from the first color measuring instruments and software to the workflow of the future in a virtual color environment.

The company can trace its roots to the literal dawning of the color technology industry - when server-based platforms were replacing mainframe environments more than 30 years ago. During this time, color technologists in three Datacolor predecessor companies – Datacolor AG in Switzerland, Instrument Colour Systems in the United Kingdom, and Applied Color Systems in the United States – were infusing precision color instruments with this new computing power.

In effect, these color technologists around the world forged an industry – one dedicated to color technology. The expertise that was to become Datacolor developed the foundations for today's modern color management and control systems throughout the 1970s and 1980s.

In 1990, the three companies merged under the Swiss-based Eichhof Holding AG. The resulting Datacolor – strengthened in resources, technology, and expertise - achieved world-class status. Taking the forefront in color technology, the company revolutionized color communication around the world. It introduced digital color sampling, commercializing a relatively academic science that led to the development of an entire environment of virtual color capabilities.

In a boldly conceived business plan the company formed ColorVision in 2000 through the successful acquisition of three high-tech companies. Their patents, expert employees and technical cultures were brought together to establish a new hot-brand and to create recognition of the color-management product category in the photography market within one year of startup. To date, ColorVision has exceeded all goals. A European ColorVision operation was established in 2002 to increase the level of service to Europe, the Middle East and Africa. In 2004 operations were established with offices in Hong Kong to better service Singapore, China, India, North Korea, Vietnam and Japan.

By 2004, ColorVision products have been the first to meet market demand and been honored throughout the world for reliable and affordable digital color control across multiple channels and media.

ColorVision has successfully established itself as the solution to a wide range of color management problems for every digital media market and for every need, consumer to professional. It stays on the cutting edge through networking and innovative partnerships with world-class leaders such as Adobe®, PANTONE®, Samsung, Eizo, and Pioneer.

True Color Comes Home:
The Latest Color Calibration Innovations

The evolution of media content has brought technology and media providers closer to one another in a new wave of convergence: home cinema. The digitization of television has turned the living room into an interactive multimedia hub for the world of home entertainment.

Datacolor recognized this convergence and forged the next-generation of color management solutions for this arena in 2004 when it acquired leading digital presentation developer Milori. Again leveraging its considerable technological expertise, the company made a strong entry into home theater with the ColorFacts Professional™. This integrated hardware and software is designed to calibrate and correct color on plasma, LCD, and wide screen TV's for video images. The ColorVision ColorFacts Professional™ line of products is designed for high-end home theater custom design and installation specialists.

As Forrester's noted in a February 2005 report on HDTV, consumers lust for the new big, flat TV sets is unabated and in fact growing. A significant percentage of those polled, 39%, said their next TV will be a flat-panel plasma or LCD TV set. Even consumers with below average incomes are buying big TV sets, setting the pace for HDTV penetration to grow past 50 million homes in the next five years

Now, Datacolor comes to the consumer with its most dynamic color management solution yet. SpyderTV is the company's response to the needs of these consumers, ensuring that they can dramatically improve picture quality with their new TV purchase[7].

Based on the award-winning ColorVision color calibration sensor, the Spyder TV is an easy-to-use consumer product scientifically measures contrast, brightness, color, tint, and color temperature presets on a television. The innovative package helps the TV owner make the necessary adjustments using proprietary software, a standard laptop or desktop computer, USB cable, and a sensor that attaches to the screen. SpyderTV even helps owners create and store a report of optimal settings for future reference.

Datacolor delivers its most dynamic color calibration solution yet. SpyderTV brings consumers an easy, sure-fire way of dramatically improving picture quality
www.SpyderTV.com

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[7] February 17, 2005 **HDTV And The Coming Bandwidth Crunch**
Consumers' Appetite For Big TVs Drives Demand For Fat Content by Josh Bernoff with Chris Charron, Tenley McHarg, Sally M. Cohen

The Color of A
Converging Future

Exactly what multimedia applications will morph into the future is still being debated. One thing is certain: the NOW generation of consumers is ready and able waiting for whatever the next wave of digital convergence to enter their homes.

Young consumers have an affinity for entertainment devices. So says a July 2005 survey of 2,416 online consumers in the United States and Canada between the ages of 12 and 17 by Forrester Research. The survey further revealed that more than half of young online consumers own DVD players, handheld and regular video game devices, home audio systems, and digital still cameras. While DVD players are the most popular devices among the younger crowd with 90% adoption, desktop PCs — a hub of media in the digital home — is almost as popular [8]

Datacolor continues to operate in proactive recognition of color management needs in a changing marketplace. Most vital is the company's migration of its technological breakthroughs into products for everyday use. Toward that end, the company has reorganized ColorVision to allow it to leverage a long legacy of innovation and expertise in the science of color, supporting the digital convergence taking place with accurate color across evolving media.

About Datacolor

Because color matters, leading businesses, creative professionals and consumers worldwide choose Datacolor's innovative technology solutions to consistently achieve the right color. A Swiss-held company, Datacolor's strong worldwide presence encompasses global manufacturing, operational facilities, and sales and support offices. ColorVision, the digital imaging unit of Datacolor, provides affordable, easy-to-use digital color control products to creative professionals, photographers, corporate customers and consumers around the world.

For more information on Datacolor products or services visit

www.datacolor.com Or www.ColorVision.com

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[8] (July 29, 2005, "Young Consumers Love Their Devices: PCs Lead The "Can't Live Without" List, But MP3 Players Top The Wish List" by Ted Schadler with Sally M. Cohen).