



# Trends in the Global Markets for Imaging Supplies

Charlie Brewer  
Managing Editor

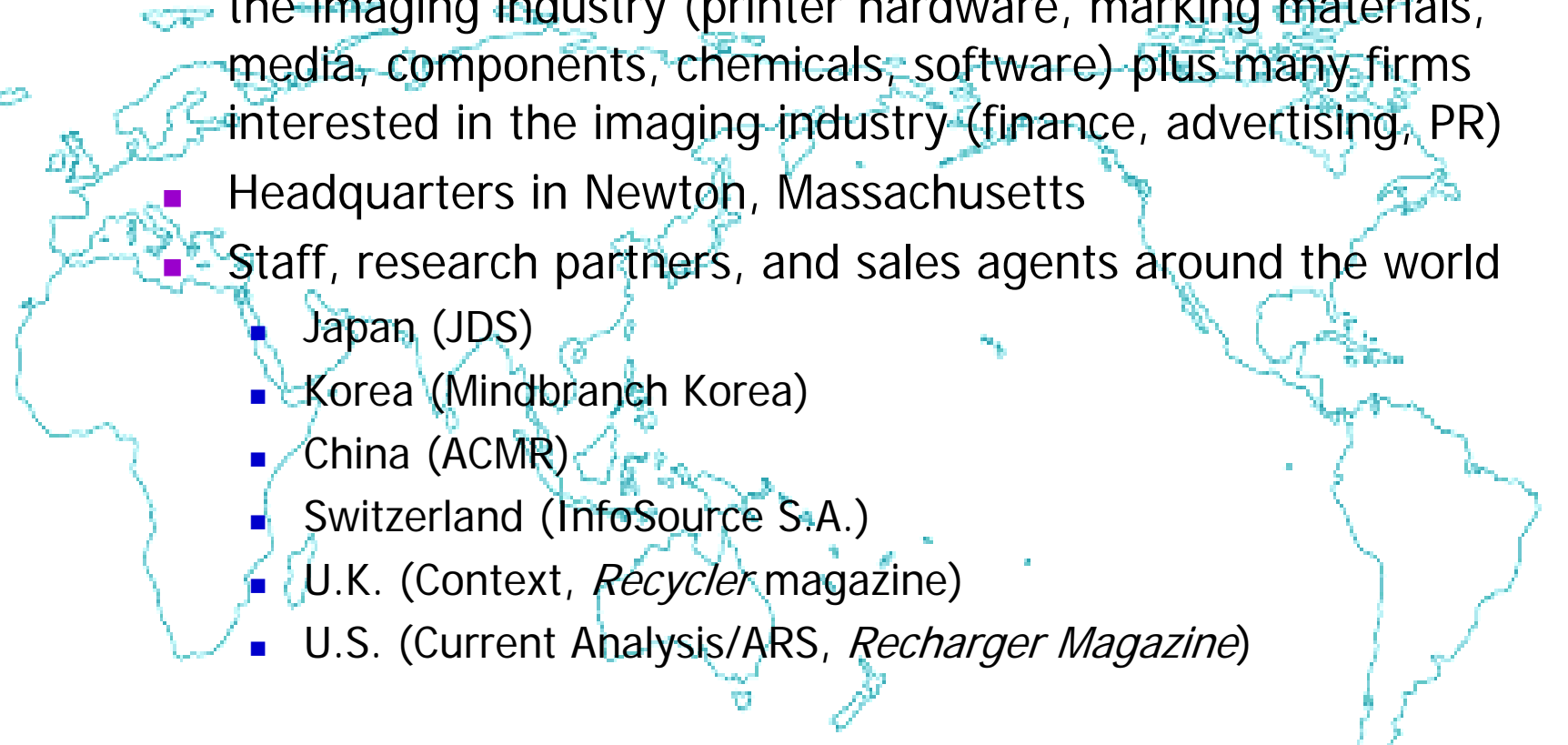
*The Hard Copy Supplies Journal*





# Lyra Research

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- 35 employees, 20 of whom are analysts, researchers, and editors
  - Over 2,000 clients in 40 countries, representing all sectors of the imaging industry (printer hardware, marking materials, media, components, chemicals, software) plus many firms interested in the imaging industry (finance, advertising, PR)
  - Headquarters in Newton, Massachusetts
  - Staff, research partners, and sales agents around the world
    - Japan (JDS)
    - Korea (Mindbranch Korea)
    - China (ACMR)
    - Switzerland (InfoSource S.A.)
    - U.K. (Context, *Recycler* magazine)
    - U.S. (Current Analysis/ARS, *Recharger Magazine*)
- 

# Lyra Research's Expertise: Market Research, Sizing, and Analysis

## LYRA RESEARCH EXPERTISE

Consulting

Analysis

Forecasts

Primary  
Research

Secondary  
Research



## DIGITAL IMAGING INDUSTRY FOCUS



Hard Copy  
Hardware

Supplies

Digital  
Photography



## ACTIONABLE INDUSTRY INSIGHT & INTELLIGENCE

Inform Product  
Development Plans

Size Key Markets

Discover Market  
Opportunities

Know Your  
Competitors

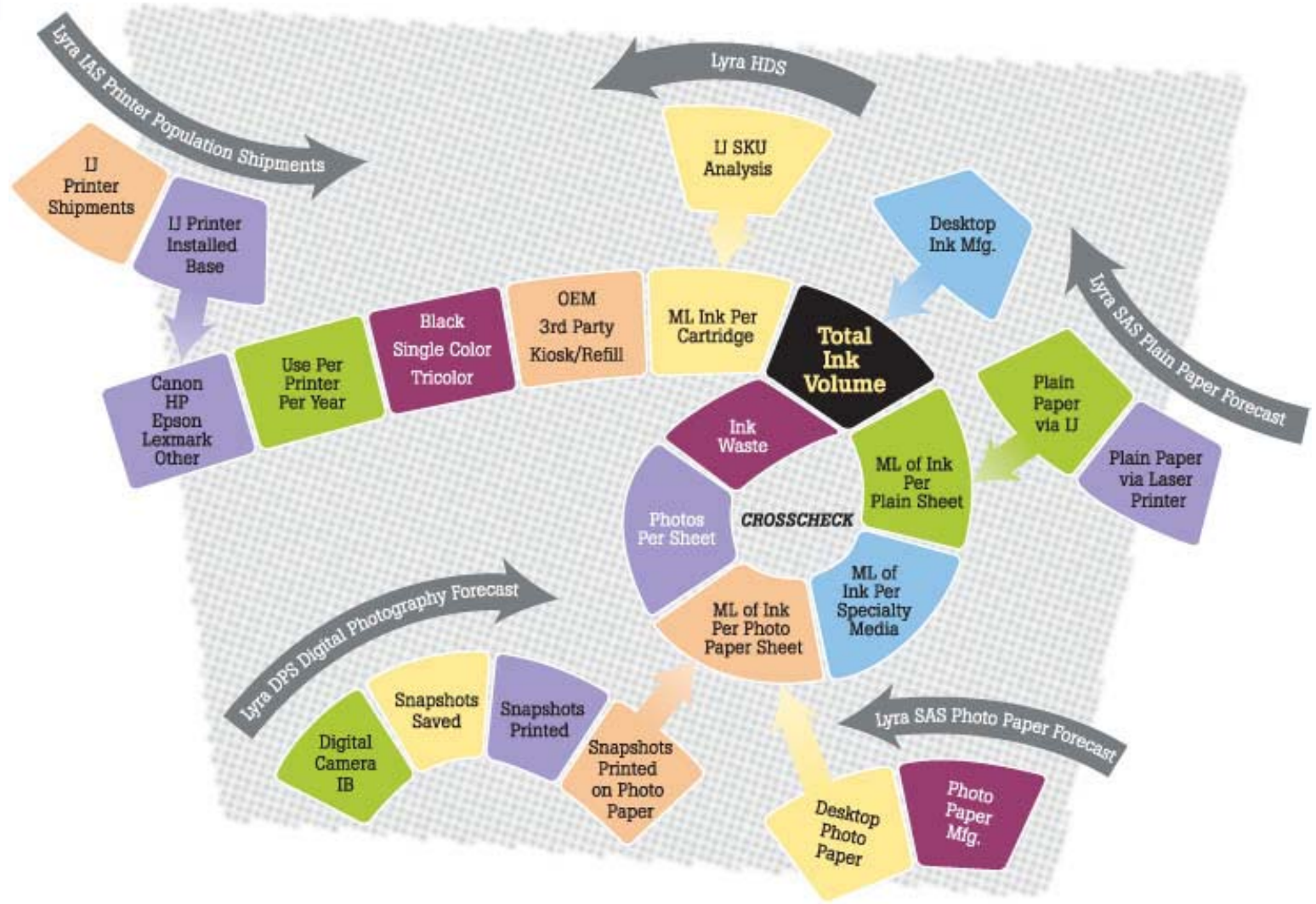
Target Marketing  
Messages

Solidify Market  
Position

Develop Strategic  
Growth Plans

Understand  
Customer Needs

# How Lyra Builds a Forecast Model: Desktop Ink





# Agenda

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- Ink jet printer market trends and aftermarket implications
  - Worldwide ink jet printer/cartridge market forecast
  - Aftermarket share of ink jet cartridge markets
  - Trends in supply of empty cartridges
- Laser printer market trends and aftermarket implications
  - Worldwide monochrome laser printer/cartridge market forecast and trends
  - Worldwide color laser printer/cartridge market forecast and trends
  - Aftermarket share of toner cartridge markets
- Conclusions and wrap-up

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# The Ink Jet Cartridge Market





# Trends in the Ink Jet Printer Market

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- Faster, better, cheaper hardware
  - Canon PIXMA MP800—\$299, 1 pl drop size, 9,600 × 2,400 dpi
  - Epson Stylus C88—\$79, 22/12 ppm
  - HP Officejet Pro K550—\$199, 37/33 ppm (black/color)
- MFPs (all-in-ones) remain popular; low-end units flourish
  - Canon PIXMA MP150—\$89.99, Lexmark X7350—\$149
- Separate ink tanks
  - Market requirement for photo printers and business printers
  - Most Epson and Canon models and more HP models (Photosmart 8250, Officejet Pro K550, Business Inkjet series)
- New focus on advanced inks
  - OEMs stress brands
    - HP Vivera, Canon ChromaLife 100, Epson DuraBrite Ultra, Lexmark Evercolor
  - More focus on performance and archivability
    - OEMs begin using Wilhelm Imaging Research numbers for supplies
    - Promote lightfastness
  - Pigmented color inks (Epson UltraChrome, new Vivera SKUs from HP, Canon's new Lucia brand)



## Trends in the Ink Jet Printer Market (continued)

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- Other new consumables tactics and strategies
  - Low-cost “standard” cartridges; higher-cost, high-yield cartridges
    - Average price of ink cartridges decreasing but price per ml increasing
  - More bundles
    - Multipacks—CMYK bundles, K twin-packs
    - Photo paper and ink SKUs
- OEMs aggressive in courts
  - Canon v. Pelikan
  - Epson takes on manufacturers and North American distributors
  - HP files complaints over infringing inks
- Empties harder to find and more expensive
  - More sophisticated reclamation schemes
  - End users continue to resist recycling
- Retail refill shops growing at a high rate





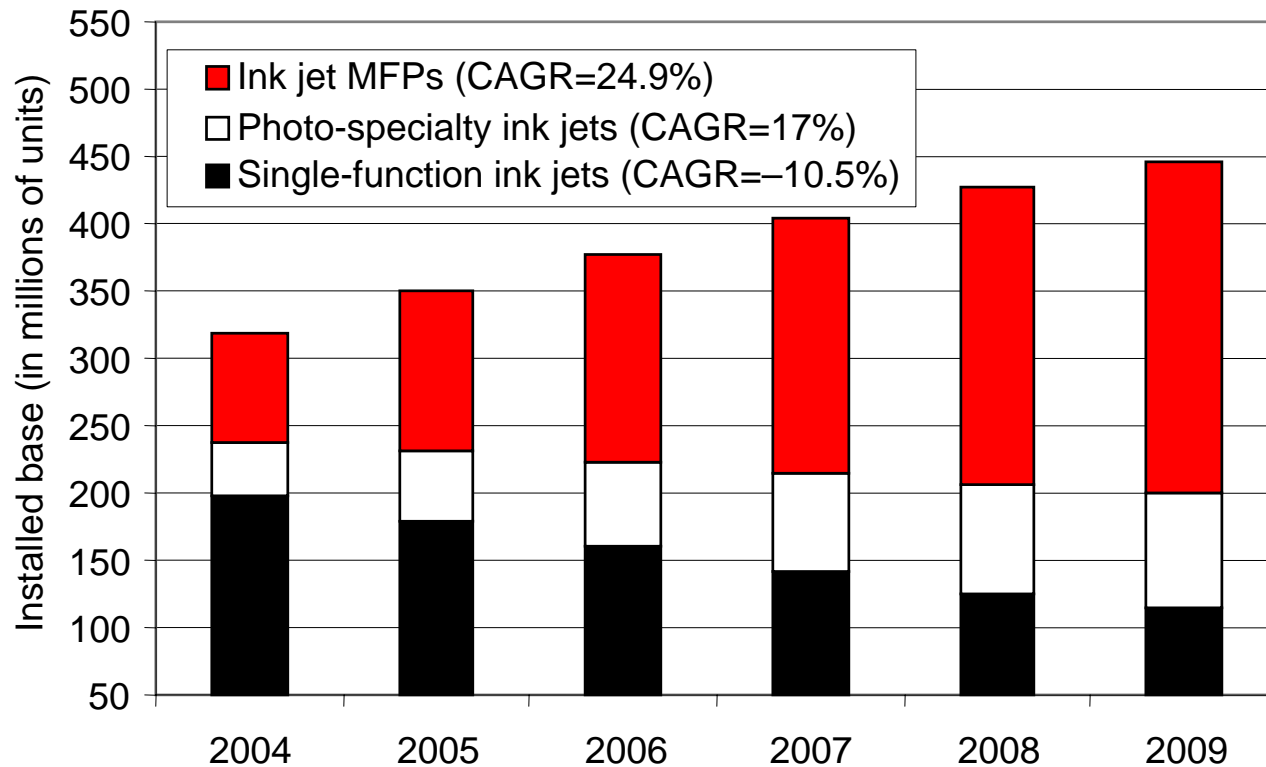
# Implications for the Aftermarket: Good News and Bad News

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- Thanks to the hardware, demand for ink SKUs continues to grow
- Trend toward MFPs will increase demand for ink (MFP users print more)
- Low-priced printers mean OEMs will fight hard for share of supplies market
- Individual tanks are easier to produce but there is a downside
  - OEM SKUs can be priced lower
  - Nozzle clogs due to ink impurities can be disastrous on printers with permanent print heads
- More advanced branded inks
  - Color matching must be precise or photos come out off-color
  - Consumers will demand more from inks
  - OEMs stress Wilhelm Imaging numbers
- Low-cost cartridges and tanks mean lower margins for remanufacturers
- Retail refill shops will raise the visibility of aftermarket

# Huge Ink Jet Installed Base Drives Supplies Sales

**Worldwide Installed Base of Ink Jet Printers,  
2004–2009**

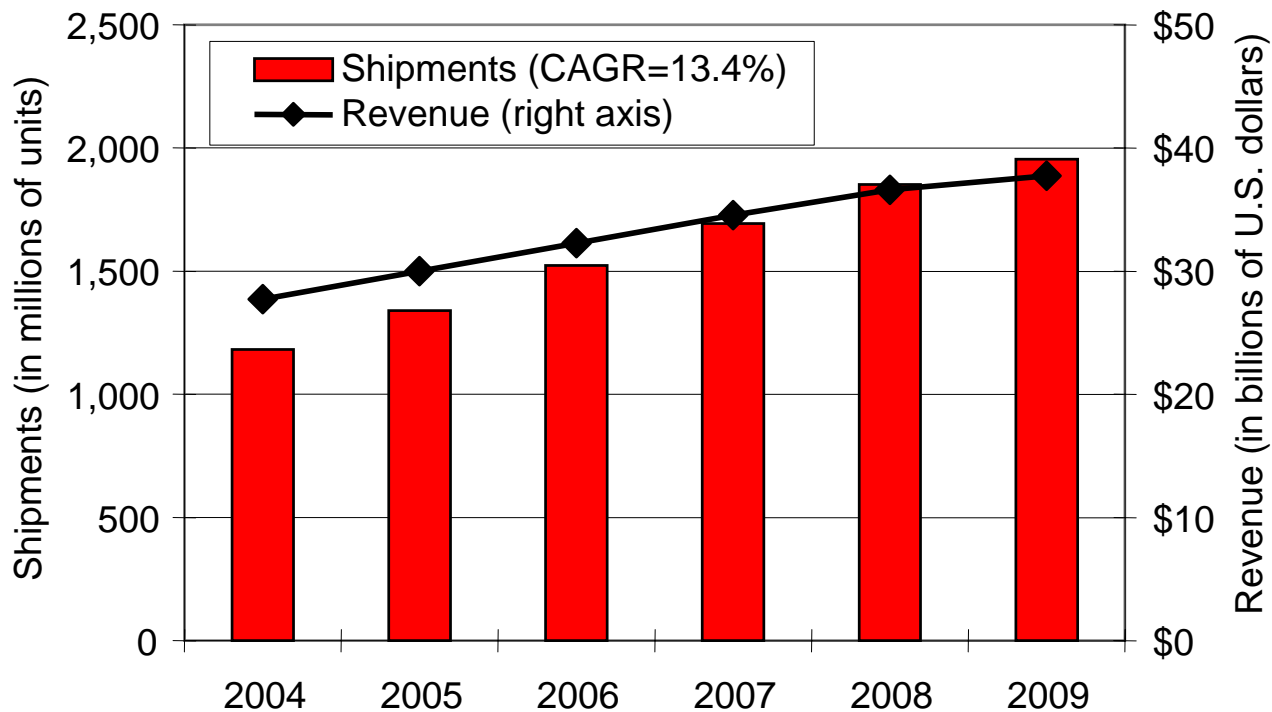


Source: Lyra Research, Inc.,

Hard Copy Industry Advisory Service, Second-Half 2005 Forecast

# Growth in Cartridge Market Exceeds Growth in Installed Base

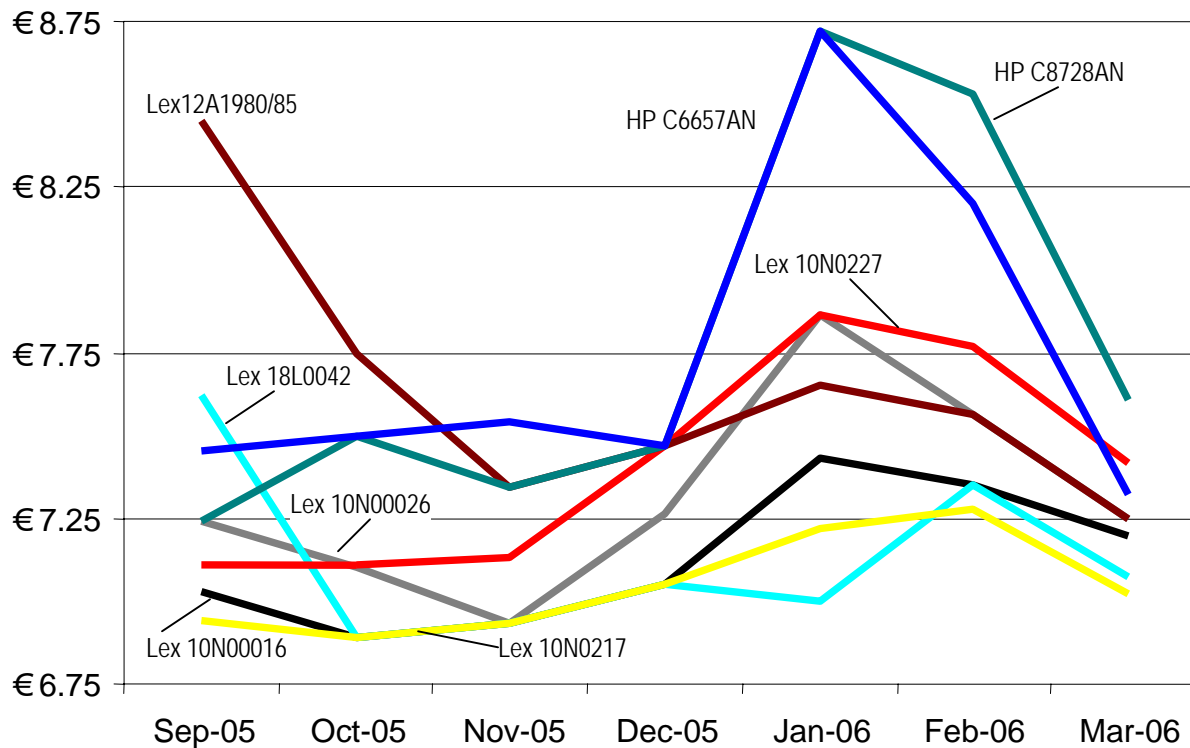
## Worldwide Ink Jet Cartridge Shipments and Revenue, 2004–2009



Source: Lyra Research, Inc.,  
Hard Copy Supplies Advisory Service, Second-Half 2005 Forecast

# Expensive Empties

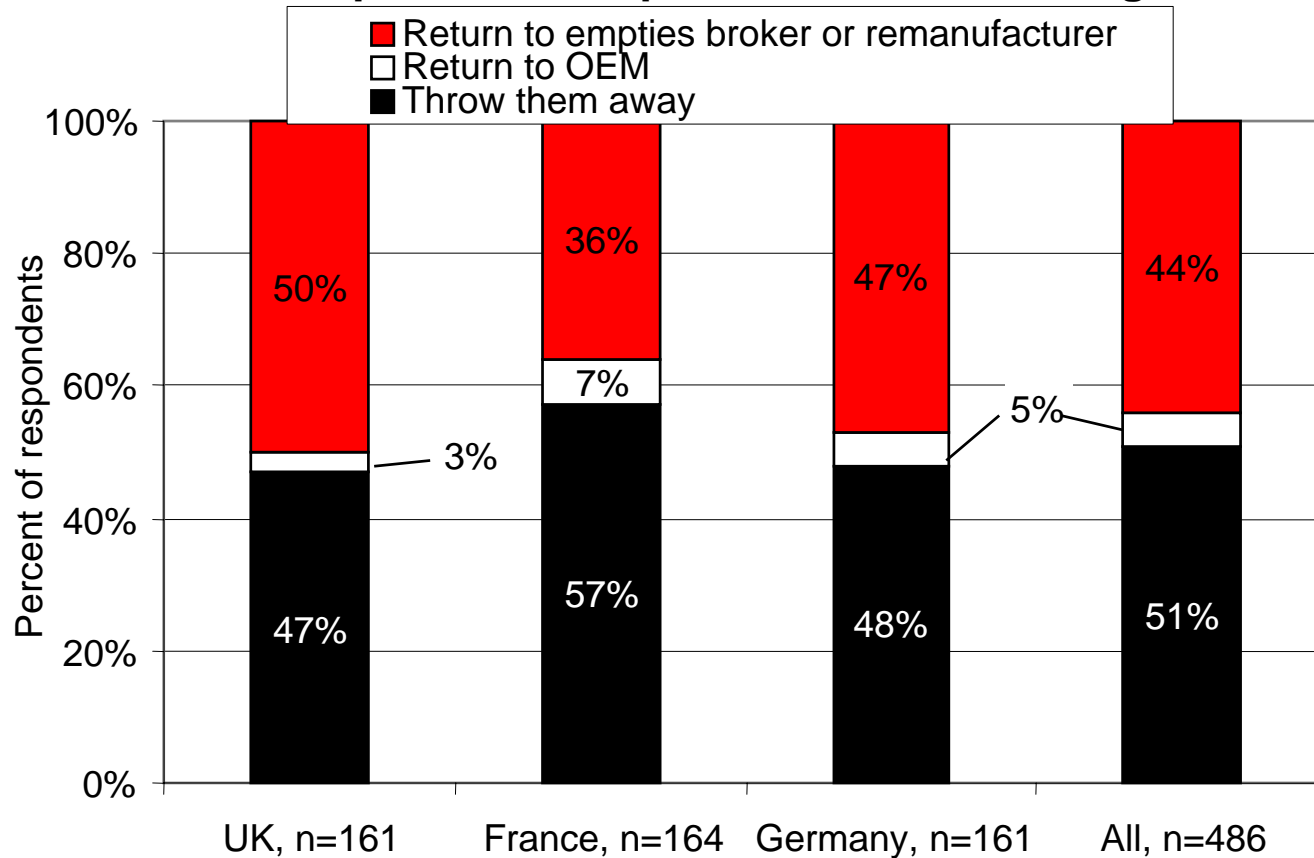
**Pricing Trend Lines for Select Empties Over €  
Sept. 2005 and March 2006**



Source: The Recycler Magazine

# End Users Are Not Helping the Empties Supply

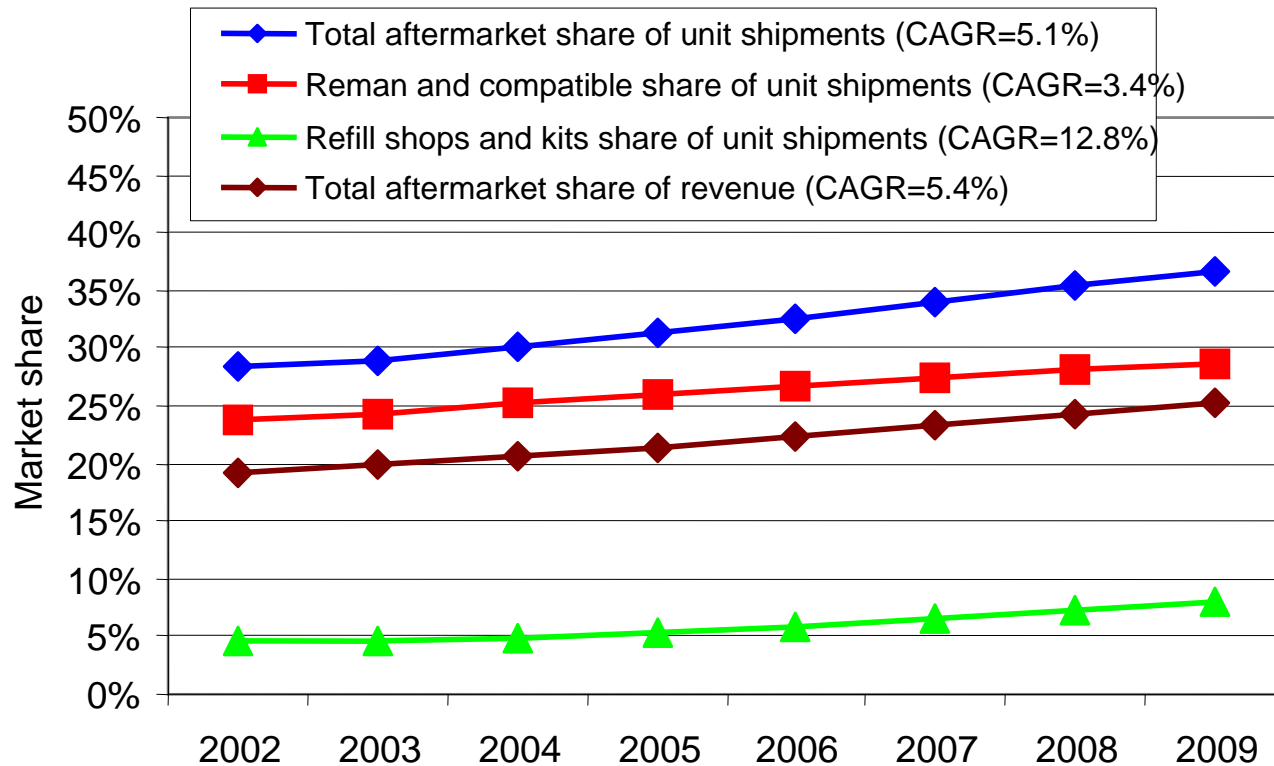
## How Respondents Dispose of Ink Jet Cartridges



Source: Lyra Research, Inc.,  
2006 Western European Consumer Survey

# Aftermarket Continues to Gain Share

## Aftermarket Share of Worldwide Ink Cartridge Market, 2002–2009

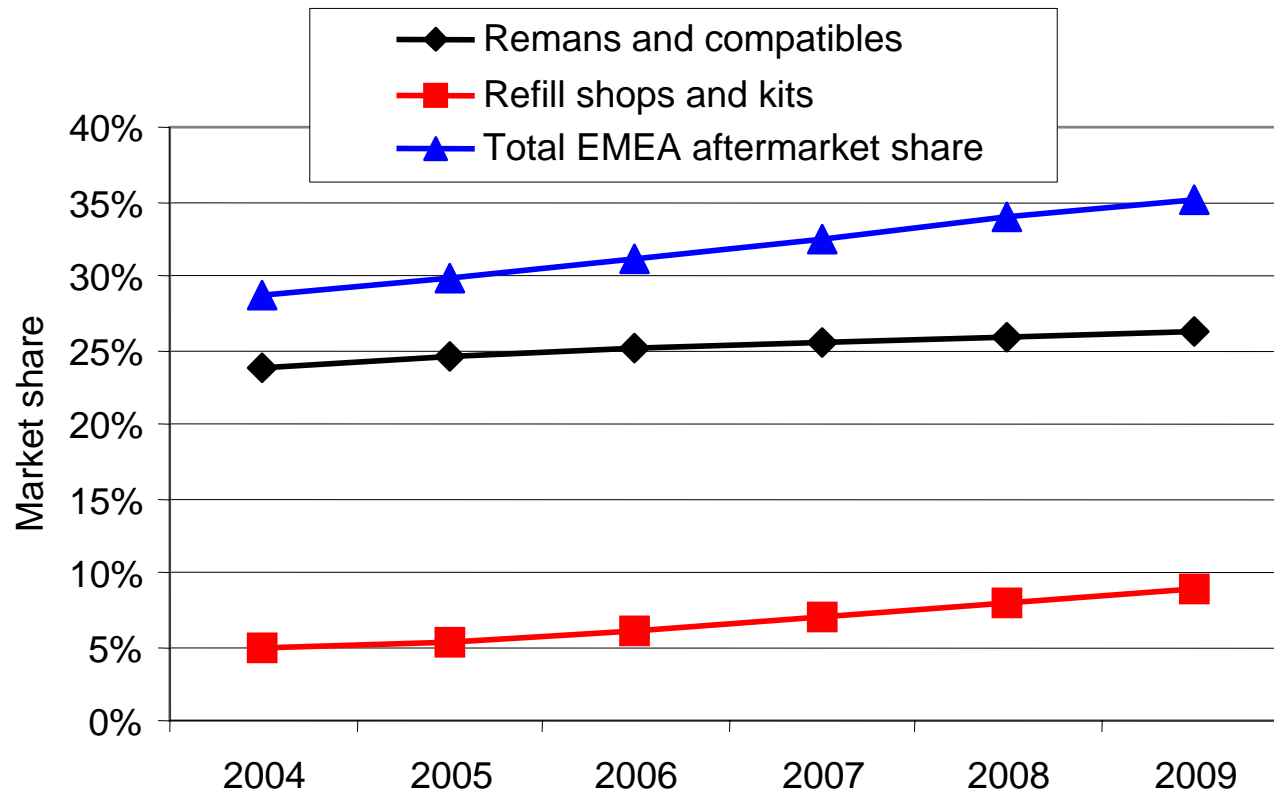


Source: Lyra Research, Inc.,  
Hard Copy Supplies Advisory Service,  
Second-Half 2005 Forecast

Note: CAGRs are for 2004–2009

# Ink Cartridge Refill Shops Gaining Share in EMEA

## Aftermarket Share of EMEA Ink Cartridge Market 2002-2009



Source: Lyra Research, Inc.,  
Hard Copy Supplies Advisory Service,  
Second-Half 2005 Forecast



## Conclusions: Ink Jet Printer Supplies Market

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- Worldwide ink cartridge market is bigger than the market for monochrome and color toner cartridges combined
- Demand for ink cartridges is higher than growth in the installed base but SKUs face margin pressures
- Branded inks, separate tanks, and new pricing strategies all pose challenges for the aftermarket
- End users increasingly demand high-performance ink sets
- OEMs continue to aggressively defend their patents
- The availability of empties will remain a problem
- The aftermarket will continue to gain market share, but the fastest-growing segment is refill shops



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# The Toner Cartridge Market





# Trends in the Laser Printer Market

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- Shipments of single-function monochrome laser printers are flat or declining
- Increasing print speeds
  - Workgroup printers now range from 25 to 55 ppm
  - Personal printers range from 12 to 22 ppm
    - Low price points driving demand
- Print quality is first-rate
  - All printers are 600 dpi minimum; most are better
  - Polymerized toners used in most color machines and many monochrome devices
- The number of color devices is growing rapidly
- MFPs are in demand
  - Shipments of monochrome MFPs are increasing
  - Copier companies are entering the market for low-priced MFPs, placing products in retail channels



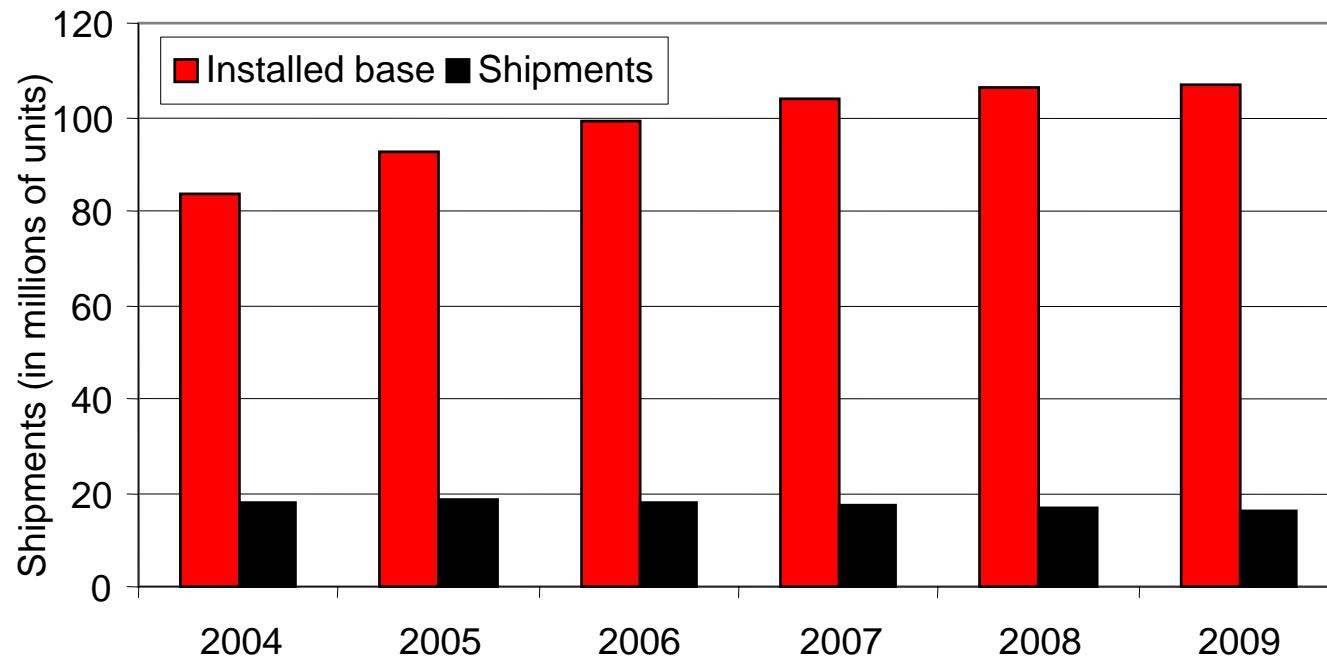
# Effects on Remanufacturing Industry

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- Overall monochrome remains flat
- Color continues to gain ground
  - “Convenience color” units
  - More machines employ polymerized color toners
    - Technical challenges—color matching, toner formulae, etc.
    - Proper toner is very important
  - User perceptions of color
- Trend toward MFPs
  - MFPs use up to 60 percent more toner annually per device
    - Color MFPs with low monochrome cost per page
  - Dealers using cost-per-page business model
  - Service opportunity
- Faster speeds
  - More precision required
- Better print quality
  - More precision required along with proper toners

# Monochrome Laser Printer Shipments Slowing, but Installed Base Still Ramping Up

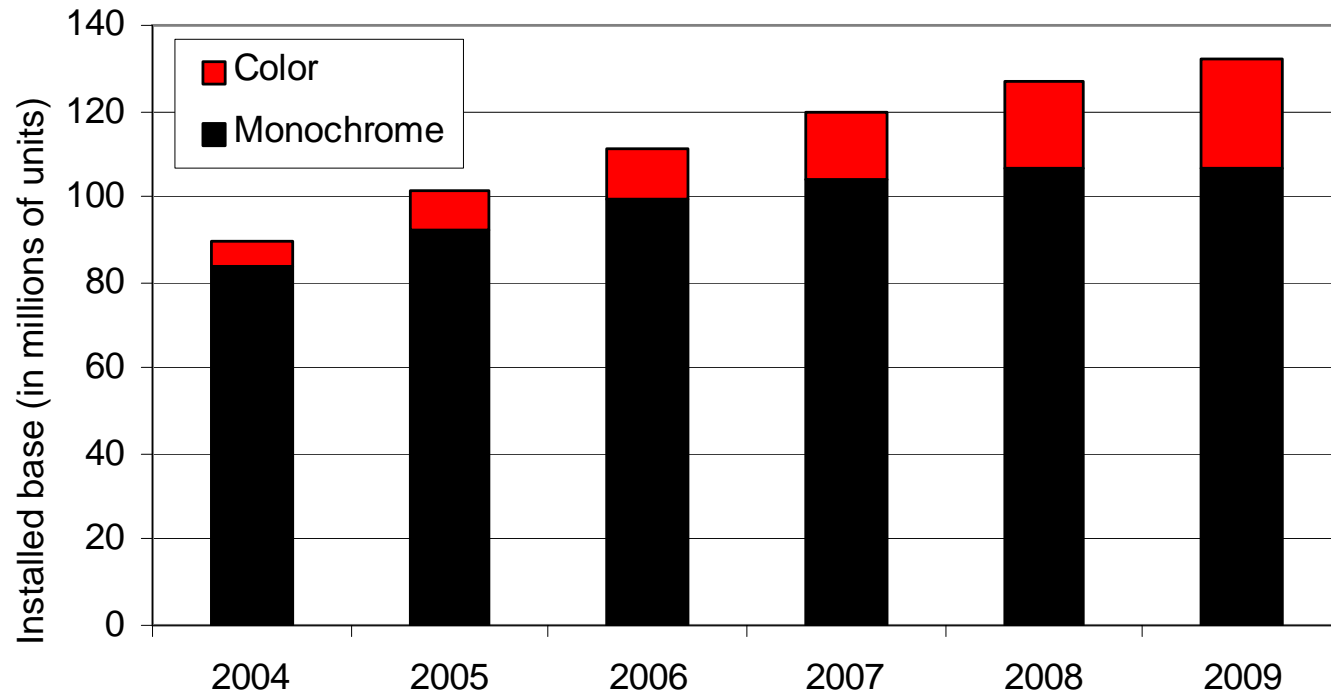
**Worldwide Shipments and Growth in the Installed Base of Monochrome Laser Printers and MFPs, 2004–2009**



Source: Lyra Research Inc.,  
Hard Copy Industry Advisory Service, Second-Half 2005 Forecast

# Worldwide Laser Printer Installed Base: Color versus Monochrome

**Worldwide Laser Printer Installed Base:  
Color versus Monochrome, 2004–2009**



Source: Lyra Research Inc.,  
Hard Copy Industry Advisory Service, Second-Half 2005 Forecast



# Major Factors Influencing the Monochrome Installed Base

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- Product reliability
  - Older printers are very reliable
  - Personal units have low volumes
- New printers have few differentiating features
- Low-cost color MFPs
- Ink jet printers
  - Increasingly targeting office users
- Color laser substitution
  - “Monochrome printers with color capability,” e.g., HP Color LaserJet 3000, Dell 3100cn, etc.



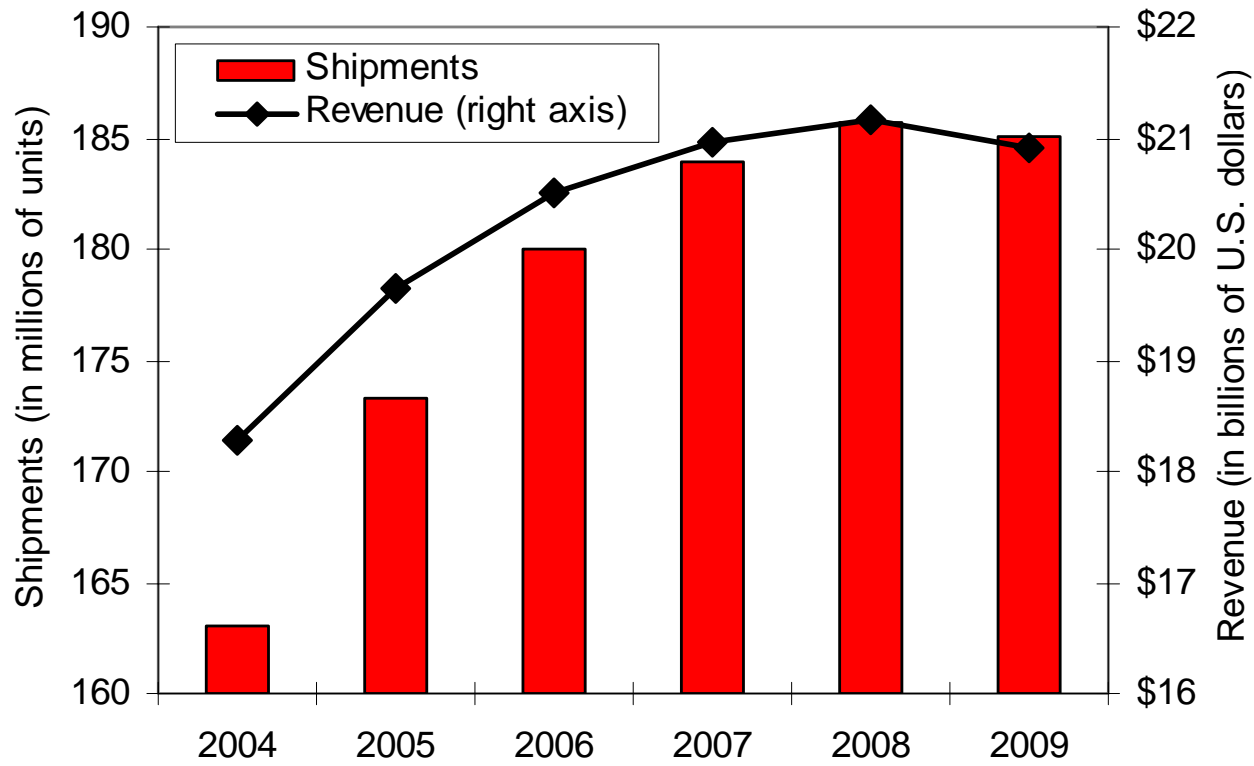
# Trends in the Toner Cartridge Market

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- Market predominately monochrome, but shift to color is speeding up
- Users are printing more, and page coverage is higher
  - More MFPs fuel more output
  - Demand for toner cartridges exceeds demand for printers
- Demand for aftermarket cartridges will continue to increase as long as quality is maintained and OEM prices stay high
  - Remanufacturers will continue to gain market share
  - Key issues for remanufacturers are pricing, quality, brand strength, and channels of distribution

# Installed Base Drives Sale of Supplies

## Worldwide Monochrome Toner Cartridge Shipments and Revenue, 2004–2009



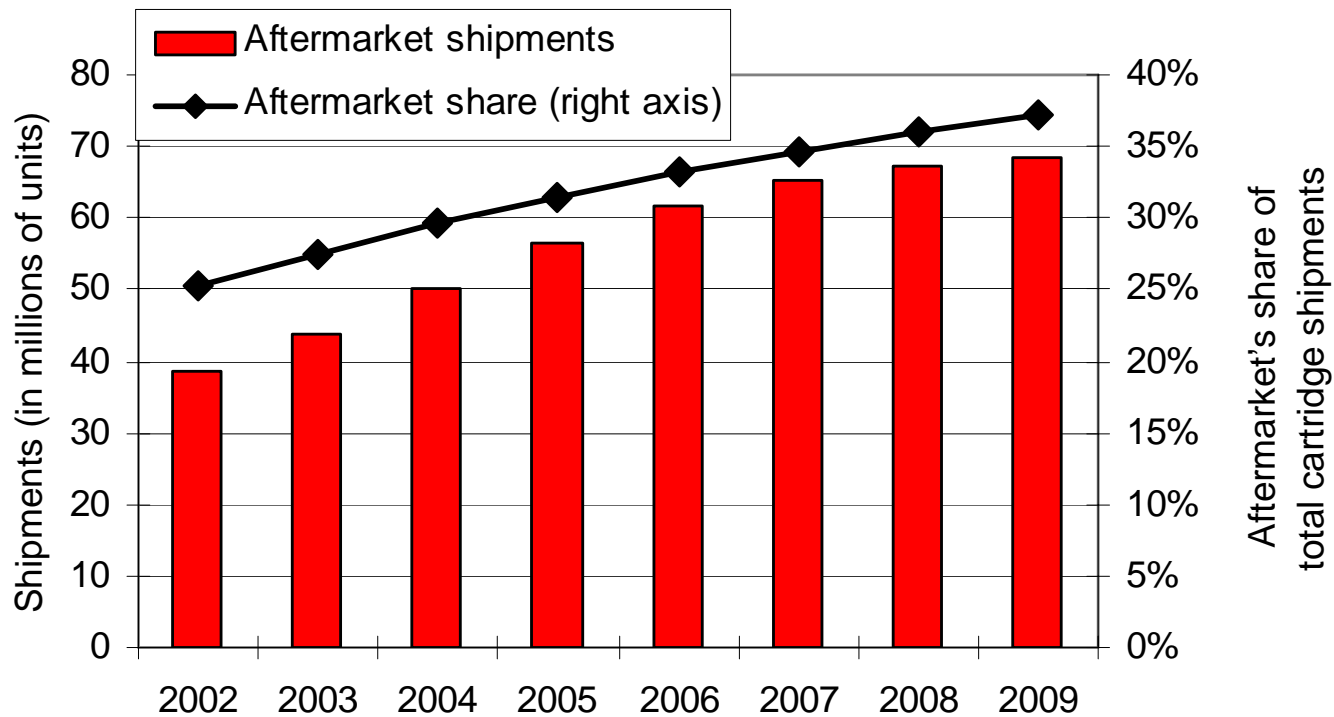
Source: Lyra Research, Inc.,

Hard Copy Supplies Advisory Service, Second-Half 2005 Forecast



# The Aftermarket Continues to Grow

**Worldwide Monochrome Toner Cartridge Shipments: Aftermarket Shipments and Share, 2002–2009**



Source: Lyra Research, Inc.,  
Hard Copy Supplies Advisory Service, Second-Half 2005 Forecast



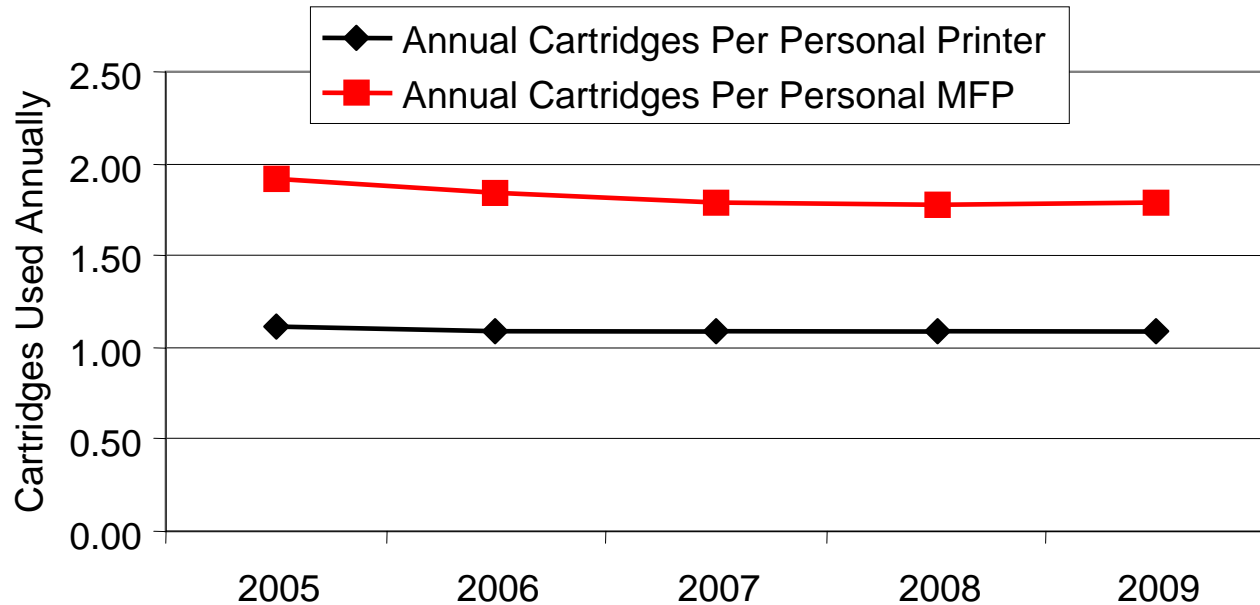
# MFPs Offer Aftermarket Opportunities

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- MFPs use between 20 and 60 percent more toner annually than single-function printers
  - According to new report from *The Recycler* and Lyra Research
- MFPs offer service opportunities
  - Operate at higher duty cycles and have more electromechanical parts
- The installed base of monochrome MFPs is growing while the installed base of monochrome single-function printers is declining
- Although only about 16 percent of all personal monochrome laser devices are MFPs, 25 percent of all cartridges consumed by personal monochrome lasers are used in MFPs
- The installed base of convenience color MFPs is growing at an 82 percent CAGR

# Personal MFPs Use More Toner

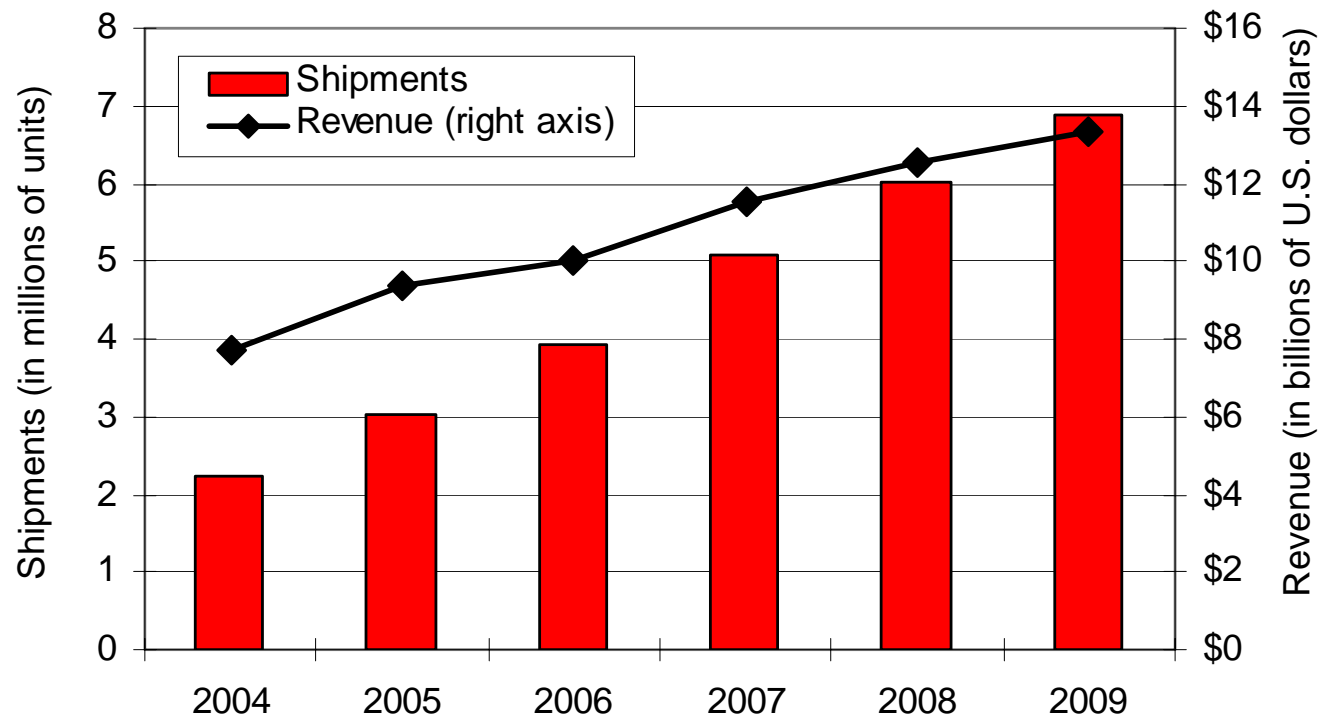
**Annual Cartridges Used By Type of Personal Monochrome Device**



Source: Lyra Research, Inc.,  
Hard Copy Supplies Advisory Service, Second-Half 2005 Forecast

# Healthy Growth in Color Laser Printer Market

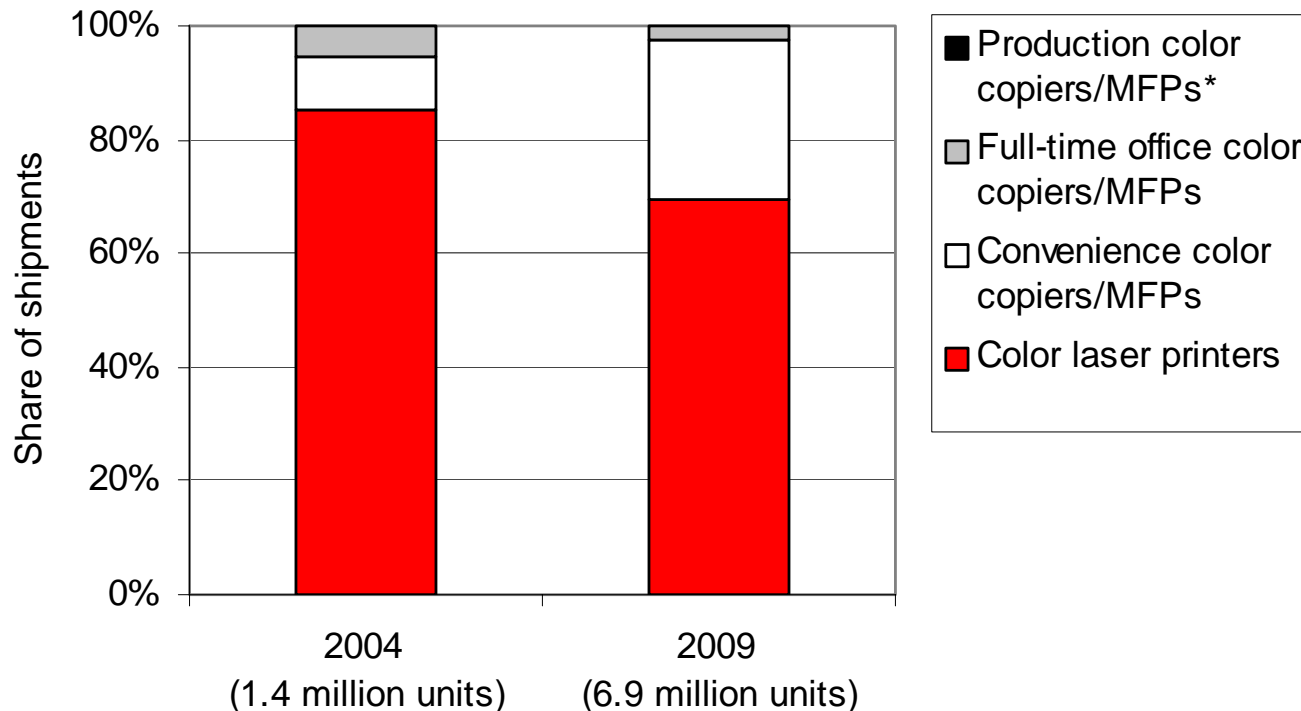
## Worldwide Color Laser Printer Shipments and Revenue, 2004–2009



Source: Lyra Research, Inc.,  
Hard Copy Industry Advisory Service, Second-Half 2005 Forecast

# Trend toward Color MFPs

## Worldwide Shipments of Color Laser Devices by Product Segment, 2004 versus 2009

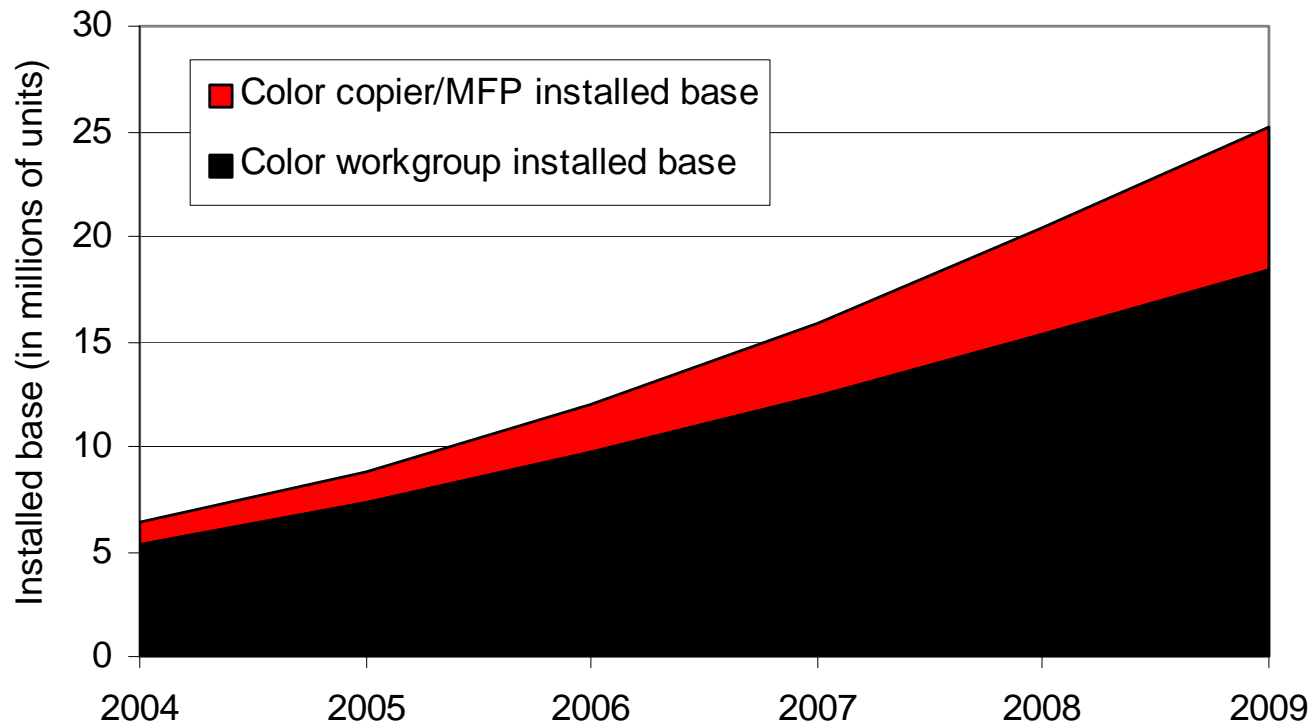


\*Share of shipments too small to be shown in figure

Source: Lyra Research, Inc.,  
Hard Copy Industry Advisory Service,  
Second-Half 2005 Forecast

# Installed Base of Color Devices Growing at Double-Digit Rates

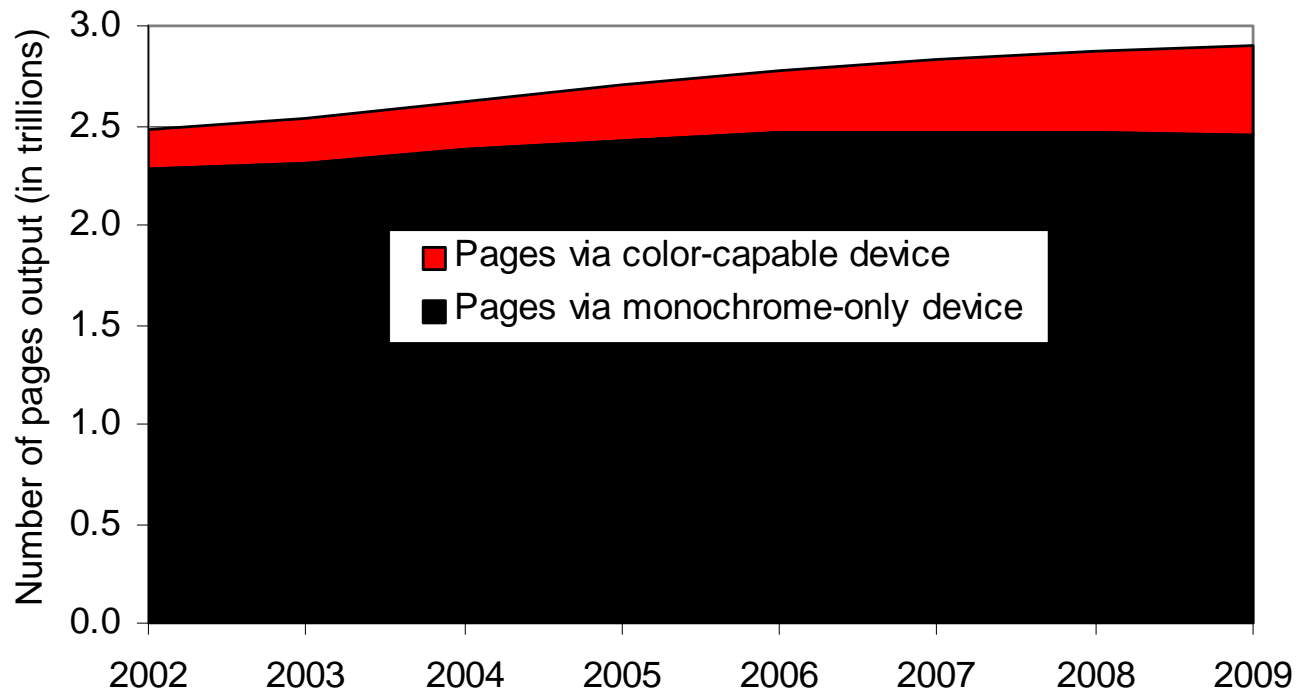
**Growth in Worldwide Installed Base of Color  
Devices, 2004–2009**



Source: Lyra Research, Inc.,  
Hard Copy Industry Advisory Service, Second-Half 2005 Forecast

# Color Is a Small Portion of Total Pages Printed

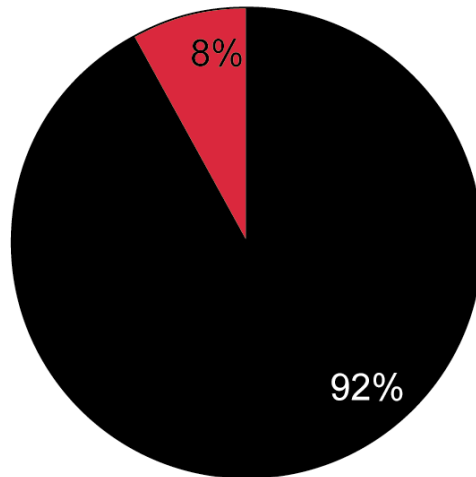
**Worldwide Plain-Paper Output: Color-Capable versus Monochrome-Only Devices, 2002–2009**



Source: Lyra Research, Inc.,  
Hard Copy Supplies Advisory Service, Second-Half 2005 Forecast

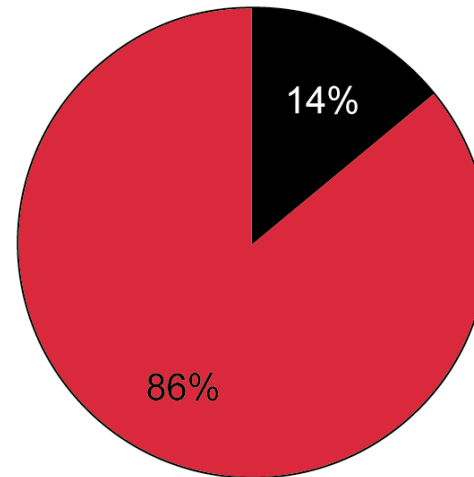
# Big Iron Prints the Big Volumes

**Worldwide Installed Base of  
Color Electrophotographic  
Devices, 2005**



Total: 8.9 million devices

**Worldwide Color  
Electrophotographic Cut-Sheet  
Paper Revenue, 2005**



Total: \$2.7 billion

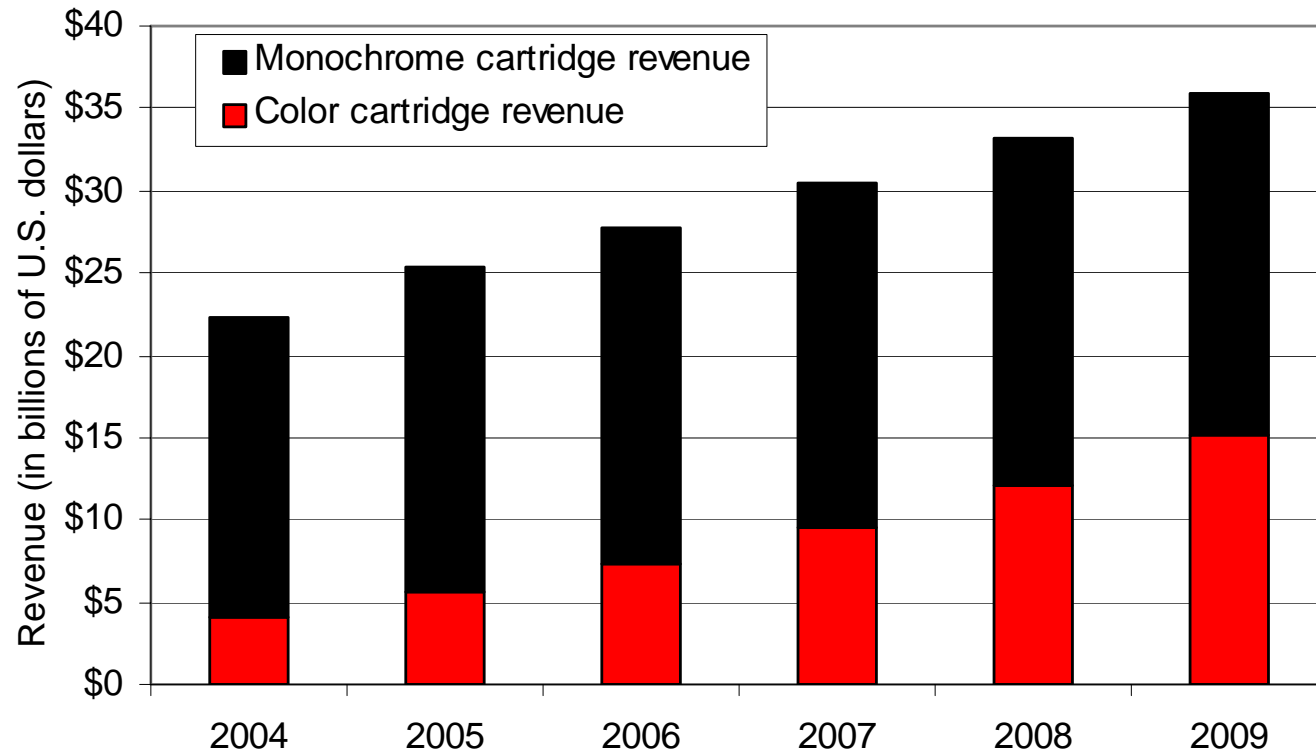
- Low-end and midrange (workgroup color laser printers, convenience color copiers/MFPs)
- High-end (full-time color copiers/MFPs, production color, digital color presses)

Source: Lyra Research, Inc.,  
Hard Copy Supplies Advisory Service, Second-Half 2005 Forecast



# Color Is Growing as Part of Supplies Revenue

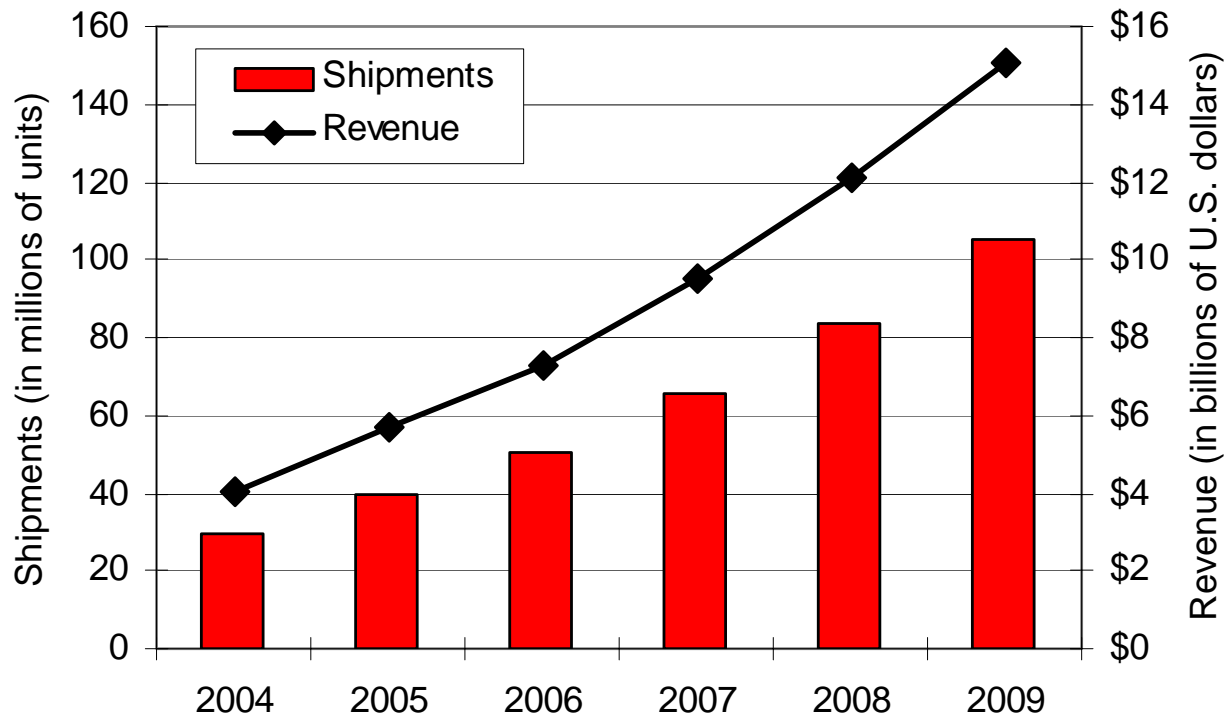
## Worldwide Revenue from Sales of Color and Monochrome Toner Cartridges, 2004–2009



Source: Lyra Research, Inc.,  
Hard Copy Supplies Advisory Service, Second-Half 2005 Forecast

# Very Healthy Growth in Color Toner Cartridge Market

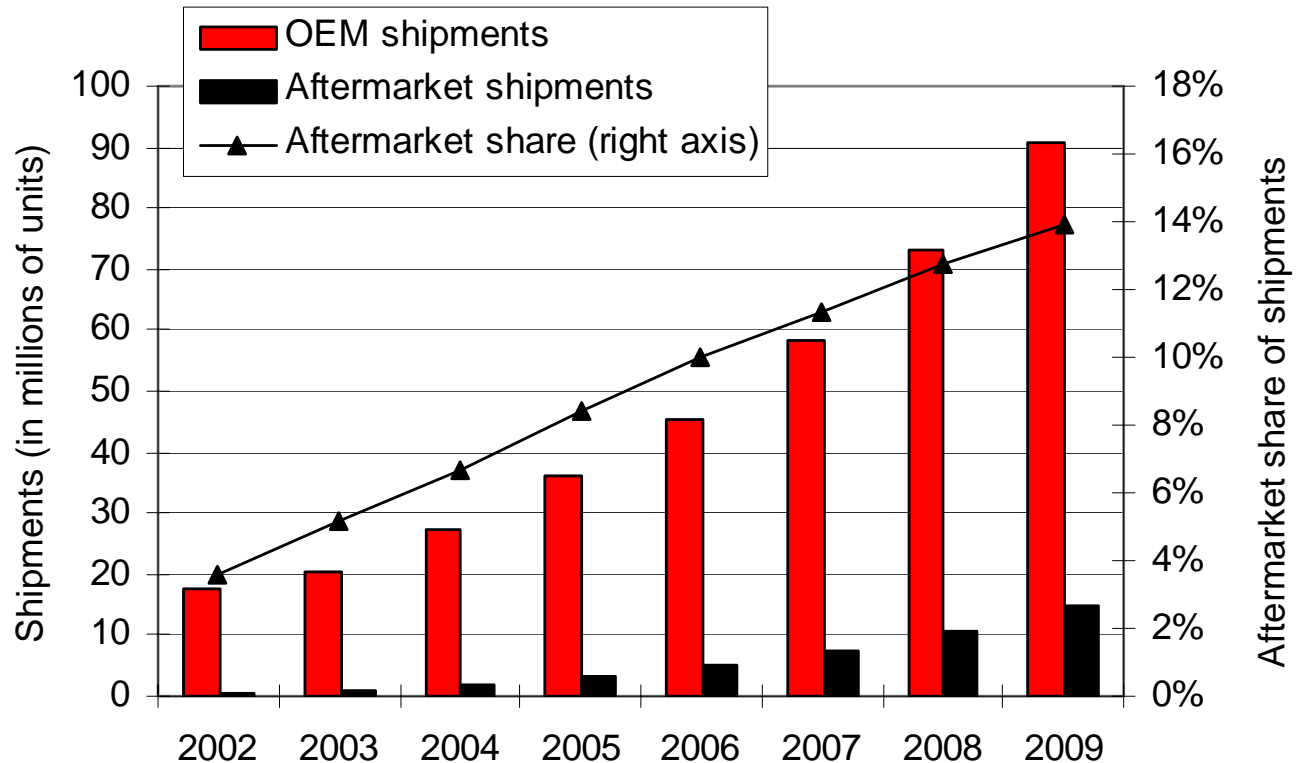
## Worldwide Color Laser Cartridge Shipments and Revenue, 2004–2009



Source: Lyra Research, Inc.,  
Hard Copy Supplies Advisory Service, Second-Half 2005 Forecast

# Aftermarket Beginning to Gain Share in Color

**Worldwide Aftermarket and OEM Color Laser Cartridge Shipments and Aftermarket Share,**



Source: Lyra Research, Inc.,  
Hard Copy Supplies Advisory Service, Second-Half 2005 Forecast



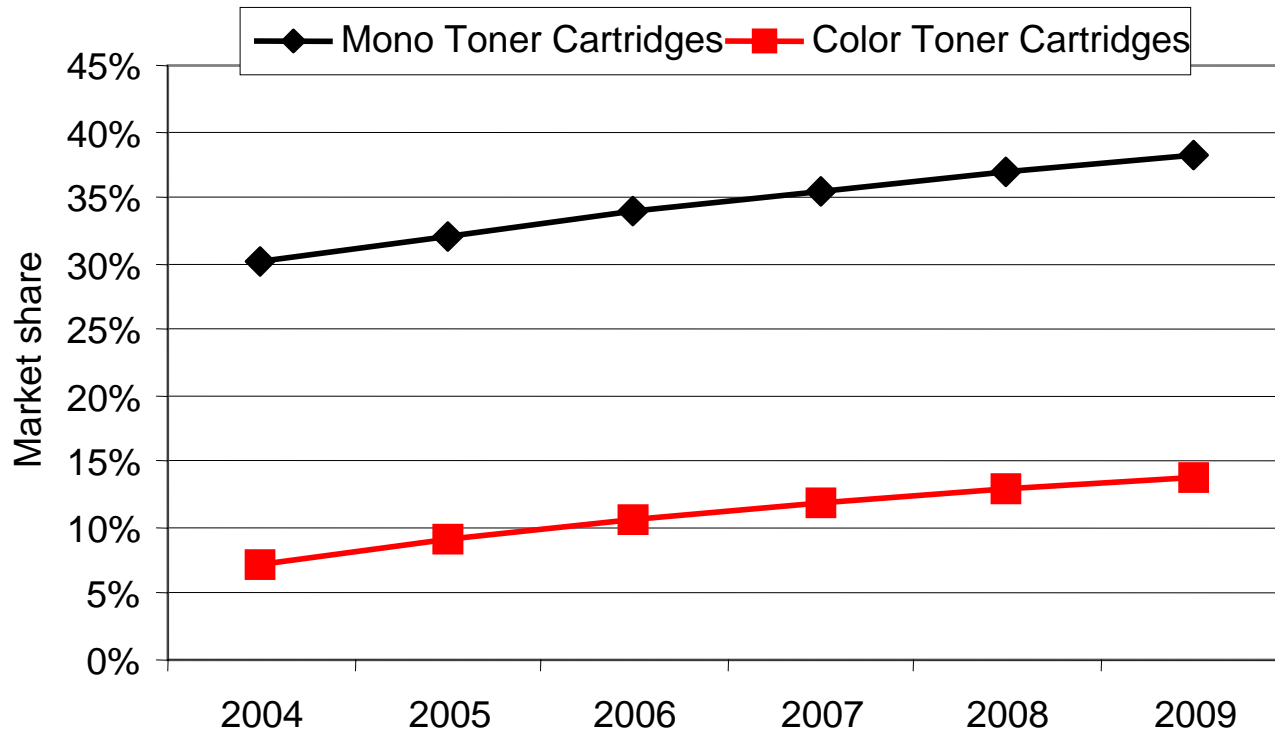
# Factors Influencing Aftermarket Share

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- Availability of compatible toner
  - New suppliers are coming online
    - Xerox and LG Chem
- Color matching is an issue especially in the graphic-arts market
  - More office users have color units and they tend to be less demanding
- Technical issues
  - Chips, complex cartridges, etc.
- User reluctance
  - Users remain more critical of color print quality than they are of monochrome print quality
- Availability of empties

# Aftermarket Share in EMEA Reflects Worldwide Trend

## Aftermarket Share of EMEA Toner Cartridge Market 2004–2009



Source: Lyra Research, Inc.,  
Hard Copy Supplies Advisory Service,  
Second-Half 2005 Forecast



## Conclusions: Laser Printer Supplies Market

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- Monochrome laser printers shipments are declining, but the installed base is huge
  - Installed base growing as shipments decline
- Color and MFPs on the rise
  - Copier business model growing
  - “Monochrome” MFPs with color capability
- Monochrome cartridge demand will grow through 2008
- Aftermarket will continue to grow share in monochrome and color
- Color growing at double-digit rates
  - Aftermarket must overcome technical challenges in order to seize share of color market
  - Number of color pages will continue to grow

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