

Return On Investment Technology Briefing

ROITechBrief™

FACT-BASED ASSESSMENT FOR TECHNOLOGY DEPLOYMENT

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GISTICS EXECUTIVE EDUCATION
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How to assess return-on-investment

factors for new and replacement

technology in media production studios

Derived from primary activity-based research of 30,000-plus media creators.

▼ COMPUTING PLATFORMS

▼ PURCHASE ADVISORY

▼ CREATIVE PROFESSION: AUTHORS, DESIGNERS, PRODUCERS

▶ TRADE-OFF ANALYSIS OF MACINTOSH AND WINDOWS PLATFORMS

\$129 U.S.
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\$178 International

OVERVIEW

Digital media professionals, and the companies that employ them, use technology to maximize productivity and creative values—producing commercial media that meet or exceed market requirements for quality, timeliness, and cost.

As in all primary commercial activities, enterprise executives must manage media production to the principal standard of return-on-investment: how this contributes to profits and shareholder value.

Based on research of 30,226 media professionals and more than 10,000 media-producing firms, this technical briefing examines all major factors related to the ways in which desktop computing platforms affect the productivity of creative professionals.

This briefing also correlates productivity gains to revenue creation and profitability of a media-producing firm.

KEY FINDINGS

Examination of the most profitable media-producing firms and individuals in the media-producer industry suggests a definitive management benchmark for the purchase and deployment of computing technology: return-on-investment (ROI).

This benchmark supersedes the common but misleading benchmark of cost-of-ownership. An ROI benchmark correlates the cost of ownership and productivity of media producers to revenue and profit.

Detailed ROI analysis reveals that a Macintosh-using creative professional produces \$26,441 more annual revenue and \$14,488 more net profit than a Windows user of comparable skill engaged in similar work.

This revenue differential enables a PowerPC Macintosh-based studio to achieve payback on a new platform in 4.59 months. In stark contrast, a Windows NT-based firm requires 12.58 months to recoup its investment—eight months longer.

Clearly, for profit-oriented firms, deployment of Macintosh technology constitutes a fiduciary responsibility.

MAIN POINTS

- Creation of brand-related media represents 86 percent of all North American commercial media production (total \$360.8 billion); entertainment productions represent 8 percent; publishing and educational endeavors represent the remaining 6 percent.
- Of 3,762,922 creative professionals who use digital media in the North American Media Producer Industry, 49.8 percent use Macintosh platforms and 37.6 percent use Windows (all versions) as their primary system.
- Of the top 10 percent of income earners (Best Practice group), 63 percent use Macintosh, 20 percent use Windows platforms, and 17 percent use either UNIX work stations or OS2 platforms.
- Due to a more efficient computing environment (i.e., integrated hardware and software platform, system resources optimized for media-rich processing, and third-party software), the Macintosh user gains per year an average 234 more prime time authoring and composition hours than a Windows user.
- In a fully accounted 36-month cost-of-ownership analysis of a system purchase, a Macintosh user saves \$2,211 more than a Windows user.
- The PowerPC Macintosh user, on average, generates 7.14 times ROI over three years. Windows NT users achieve 2.02 times ROI in the same period.

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INDUSTRY OVERVIEW

The North American Media Producer Industry earned \$360,760,000,000 in 1996. This represents the aggregated commercial output of all media-producer segments.

The Digital Media sector of the industry consists of those firms and independent contractors that use computers to produce 50 percent or more of their work. This sector continues to pace all growth in the industry.

The Non-Digital Media sector produces traditional forms of media, such as film, photographs, and other physical or analog expressions. Production for this sector has remained flat for more than a decade. This reflects the ongoing conversion to digital technology—a more powerful, efficient means of production.

The year 1996 was a pivotal one for the North American Media Industry—it was the year that the Digital Media sector surpassed the traditional media sector. In 1997 dollars, the Digital Media sector earned approximately \$1 billion a day in production services.

GISTICS estimates that by 1999 overall industry earnings will grow to \$472,196,000,000, and that the Digital Media sector alone will account for \$316,905,000,000—67.1 percent of the total.

The introduction of advanced television (ATV), including standard and high definition television broadcast, will mark the wholesale conversion of the analog television broadcast industry. Hollywood feature film entertainment, meanwhile, remains the last bastion of non-digital production. It awaits the emergence and roll-out of super-high-definition digital presentation systems that deliver comparable, if not superior, production value to 70mm motion pictures—an event forecasted for the year 2012. By that point, the Media Producer Industry will become almost completely digital.

INDUSTRY SUBSECTORS

Corporate branding dominates the North American Media Producer Industry, representing 86 percent of total media production—\$310.4 billion in 1996.

The largest component of corporate branding—**Brand Identity**—includes all aspects of media production related to the **Presentations, Training, and Corporate Collateral** subsectors, making up 74 percent of total media production. Presentations (for internal and external audiences) represent 12.4 percent of industry output—\$44.8 billion. Training (another way that corporations create and enhance their brands) represents 10.7 percent of total industry production—\$38.6 billion of a total North American training market of \$70 billion. Corporate Collateral, consisting of brochures, data sheets, annual reports, signage, and packaging, constitutes 51.2 percent of the total industry output—\$184.8 billion.

The **Advertising** subsector consists primarily of work produced by agencies and marketing firms. This subsector represents 11.2 percent of the industry total—\$40.5 billion. This figure does not include agency revenues for media placement and distribution; rather, it emphasizes revenues from media production alone.

The **Branded Merchandise** subsector consists of specialty items manufactured by firms under license to the owners of an entertainment product. These include merchandise related to movies, musical performers, and sports franchises. This subsection earned .049 percent, or \$1.8 billion, of total industry revenues.

Other subsectors of the North American Media Producer Industry, not directly related to Brand Identity, include:

Computer Media, consisting of production related to video games, CD-ROMs, and Web sites. This subsector earned 1.38 percent of the industry total—\$5 billion.

Theme Parks, which include all forms of location-based entertainment, representing 1.79 percent of industry total—\$6.5 billion.

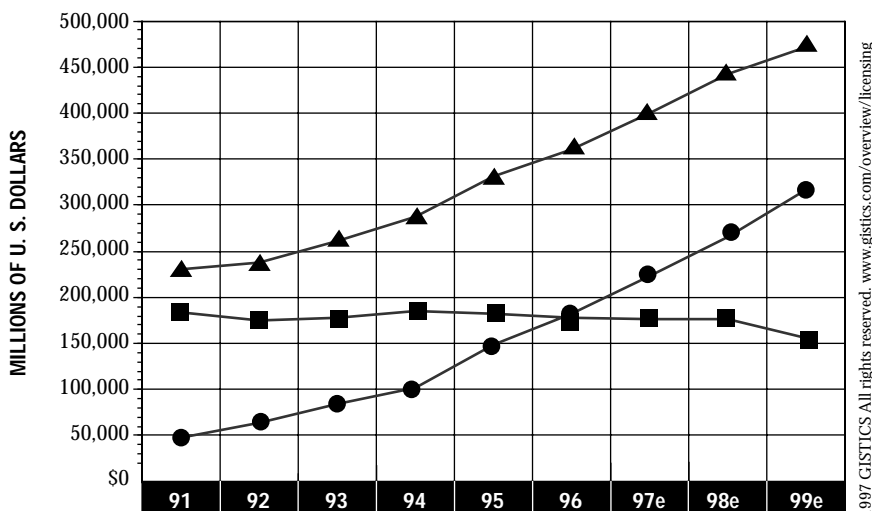
TV / Cable / Video, garnering 3.25 percent of total industry production—\$12.7 billion.

Film / Music / Radio, capturing 2.02 percent of total industry production—\$5.1 billion. The film-related portion represents 0.82 percent; music, 0.7 percent; and radio, 0.52 percent.

Publishing, including newspapers, magazines, newsletters, books, greeting cards, calendars, and collectible cards (e.g., baseball), representing 5.86 percent of total industry production—\$21.1 billion.

In calculating these industry figures, GISTICS has used a conservative approach. Data excluded media produced but not used; these represent approximately 15 to 20 percent of total industry output.

NORTH AMERICAN MEDIA PRODUCER REVENUES



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Digital media production drives overall industry growth. The non-digital sector will remain flat and in decline as the industry continues to convert to more efficient or modifiable digital production.

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Digital Media Producers

The **Digital Media** sector garnered \$182 billion, or 50.7 percent, of total industry revenue in 1996.

In the same period, the **Non-Digital Media** sector earned \$178 billion, or 49.3 percent of industry revenues.

Analysis of both sectors reveals that the **Publishing** subsector has derived a significantly higher portion of its production from the Digital Media sector.

The **Theme Park, Film / Music / Video, and TV / Cable / Video** subsectors still derive large portions of their production from the Non-Digital Media sector. (While digital composition and effects may represent a significant portion of some entertainment products within these subsectors, they generally contribute a relatively small portion of overall production revenues.)

Value of Digital Media

The radical, wholesale shift of media production to digital underscores three important trends.

First, unlike the traditional non-digital process, digital production enables creative and production teams to easily add new production value or creativity at each major step. In fact, an all-digital production process encourages tweaking of the work product by individuals not normally considered "creative," but who nonetheless add creative value (e.g., prepress and printing technicians, Webmasters).

Second, digital media production encourages the storage and retrieval of reusable "parts," e.g., photographs or illustrations that one can reexpress across print, broadcast, and interactive mediums. Reuse and reexpression not only reduce cost and production cycle times, they increase revenue per employee. Higher productivity means more completed and billable work annually.

Third, digital media production adds greater control over elements essential to effective brand building: consistent replication of colors, logos, typography, and other brand identity elements over multiple mediums. In this way digital media has provided technological support for trademarking color—a newly recognized dimension by worldwide copyright and trademark protection agencies—instantly establishing a brand through its distinctive logo and design in most countries around the world via the Web.

Each of these three trends have contributed to greater efficiency and effectiveness in commercial communications—how corporations use media to find and serve customers.

The next major wave of technology for commercial communications will emphasize the creation of 3D media objects—essentially, databases containing flat two-dimensional art, three-dimensional digital objects, and motion graphics. These 3D media objects will each serve as a single self-contained repository for multiple cross-media expressions, e.g., four-color images for a variety of printing options, static and dynamic images for CD-ROMs and Web sites, navigable movies and three-dimensional spaces for virtual reality applications. Superior economics will drive the shift to creating these 3D media objects, further solidifying the role of digital technology in overall media production.

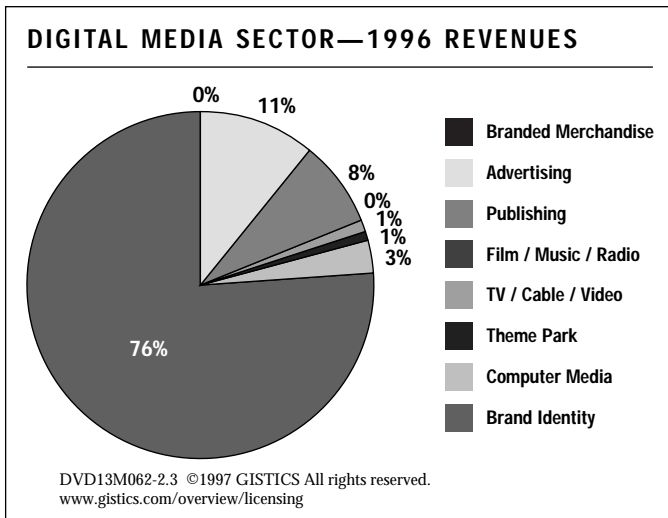
* NOTE: Publishing, Cable, Film, Theme Parks, Branded Merchandise, and Computer Media (including multimedia CD-ROMs) account for approximately \$120 billion in consumer revenues, a little more than 10 percent of total media production and delivery costs (total \$1.1 trillion).

What This Means

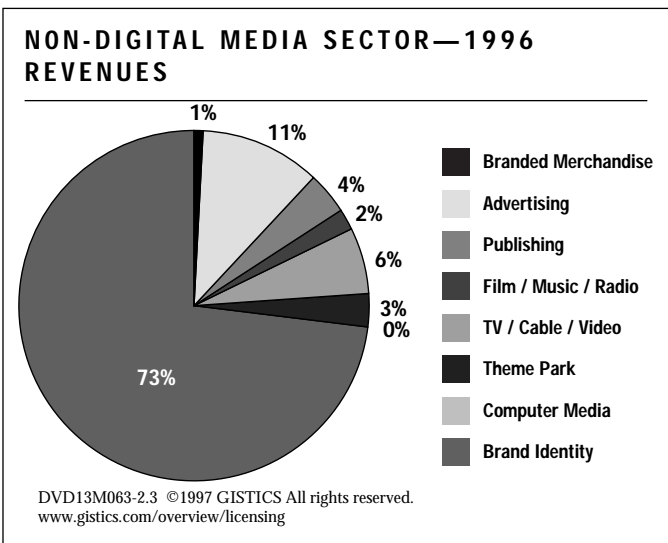
Production of commercial media represents the economic interests of enterprises and their brand-building efforts.

Branding-related media production* exerts a powerful influence on the structure and dynamics of the Media Producer Industry. It emphasizes ever-shortening time-to-market cycles, consistent reproduction of brand-identity elements that may span decades, and cost justifications related to the return-on-investment produced by effective promotion (e.g., sales)—all economic, strategic concerns of the enterprise.

Thus, a more detailed understanding of brand-building will assist members of the Media Producer Industry in becoming more successful.



This sector earned \$182 billion—50.7 percent of total industry revenues of \$360.8 billion. Media production related to building brands represents the bulk of industry revenues. Advertising, a closely related but separate industry segment, relates to media production performed by independent agencies and service firms.



This sector earned \$178 billion, or 49.3 percent of total industry revenues. The **Film / Music / Radio, TV / Cable / Video, and Theme Park** segments represent the last major bastions of analog production.

BRANDING DRIVES COMMERCIAL MEDIA PRODUCTION

A brief review of brand building will clarify the crucial economic concerns that drive and shape the industries that produce media for brand-building purposes.

Most experts in business management hold that the enterprise exists for the purpose of finding and serving customers.

To succeed, the enterprise must identify and satisfy **customer priorities** and, in return, **capture value** in the form of profit, brand equity, and market capitalization. This requires investment in infrastructure, practices, and people.

For most companies, success reflects the **buying and using experience of its customers**. Either customers received superior value from a company's product or service, or they did not. If not, they will likely look for, and eventually find, alternatives. If they received superior value, they will likely buy from the company again.

Customers, however, return again and again based on more than their buying and using experience. Marketers discovered long ago that **awareness, trial, preference and loyalty**—stages of the brand-building process—reflect the application of media to the customer's experience. Marketers use commercial media to focus customer attention on key benefits. From there, marketers try to establish lasting emotional associations with customers.

Brand building characterizes the systematic application of media (containing relevant messages) to the buying and using experience of customers; media molds the customer experience into a "brand"—a customer's personalized relationship with a product and the company.

Brands confer several benefits upon the enterprise. They convey crisply defined, familiar, and safe purchase decisions to customers. They shorten customer deliberations and accelerate sales cycles. They induce customers to pay a premium price. Great brands create communities of fans and evangelists—"walking, talking, referral-generating, repeat purchase customers." They drive earnings growth.

Brand equity represents the net positive associations, thoughts, and feelings of customers—the remaining positives, after subtracting all the negatives associated with the buying and using experience of customers.

Fiduciary Concern

Great brands and the equity they create instill **stockholder confidence**—they induce investors to pay a "premium" for a share of stock, as measured by a higher price-earnings ratio. This underscores important new trends for chief executive officers and their boards of directors to understand: as small investors, principally holders of 401(k) and 403(b) investment retirement accounts, continue to flood into public markets, research shows that they invest in companies with well-known brands.

How the enterprise *creates* (directly or indirectly through its branding agencies) and *applies* media to the buying and using experience of its customers influences how it creates brand equity—why customers prefer and remain loyal to a brand, and stockholders pay higher price-earnings ratios for a share of stock.

In this way, building brand equity defines a **fiduciary responsibility**—a central concern for the chief executive officer.

This supports the conclusion that *anything that improves brand building for the enterprise must demand the highest priority*.

The importance of how the enterprise creates and uses media cannot be overestimated.

The Rebirth of Marketing

The theory and practice of marketing has continued to evolve, incorporating many of the benefits of advanced technology. The figure below illustrates a key tenet of marketing in the information age: all marketing activities should now create data that the enterprise appends to customer records. As marketing moves into the interactive phase, the enterprise will collect hundreds of pieces of data, using the power of computer databases to assemble penetrating new insights into customer motivations and future behavior.

Companies will systematically profile customers, and use their heightened understanding to better serve and satisfy them. This will stimulate higher levels of competition, ultimately collapsing windows of opportunity in a market.

This in turn will place a premium on rapid production of brand-related media—the ability to quickly exploit market opportunities.

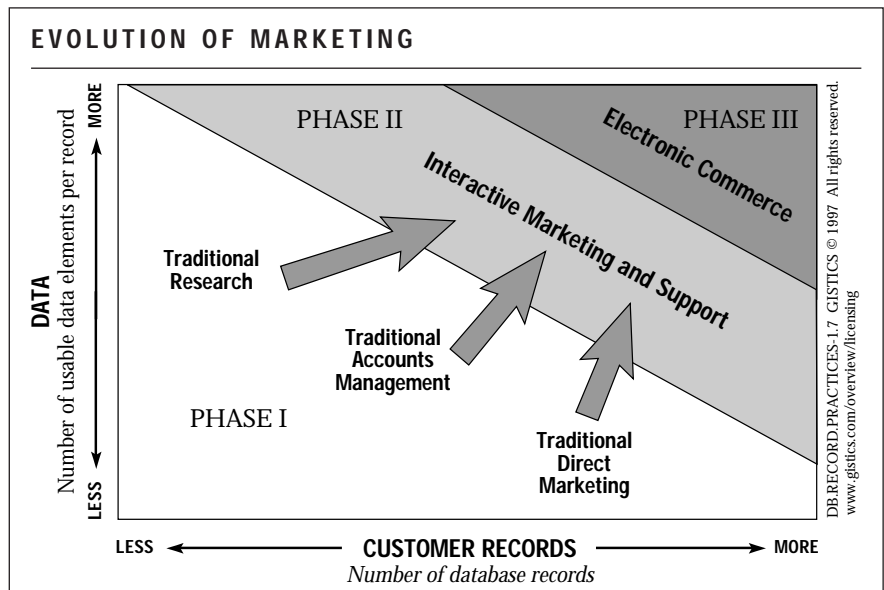
Three Metrics for Brand Media Creation

The following three metrics represent new tools for monitoring the process of accelerated media production:

Branding effectiveness relates to the quality of media used in a project—the consistency of color, evenness of coverage, richness of graphics and images, dynamism and fluidity of motion elements, photorealism of animations and illustrations, the depth and fidelity of aural renditions and musical compositions, etc.—and the enduring impact of media upon customers.

Creative range emphasizes the ability to realize a creative idea in a finished work—how that creativity adds value to the brand.

Development efficiency relates to the speed of production: how quickly the enterprise can create and apply media to the customer's experience. As an internal metric, this translates into cycle time, which refers to a more commonly accepted idea, time-to-market.



Digital media drives the rapid evolution of marketing. Enterprises must now emphasize the integration of marketing practices and interactive relationships; the collection of customer information defines a critical success factor. Enterprises lacking this factor, the next wave—electronic commerce—will pass them by.

MEDIA-PRODUCER INDUSTRY

Three deployment areas constitute the media-producer industry, representing 3,762,922 creative and trade professionals. These areas—brand mediaspace, entertainment mediaspace, and publishing—contain 3,467,941 individuals who produce digital media more than 50 percent of their work time.

Brand Mediaspace

A network of business entities (shown below) create or help produce media specifically related to the brand-building activities of enterprises in both the private and public arenas.

According to U.S. Department of Commerce data and exhaustive analysis by GISTICS, North American enterprises spent \$1.1 trillion during 1996 for media creation, delivery, and placement of advertising, marketing, publishing, and promotion of products and services. Media-production costs comprised \$360.8 billion, or 30.1 percent of this amount. The remaining \$739.3 billion represents executive direction, delivery costs, and placement fees for media.

The figure, **Brand Mediaspace**, illustrates how brand managers, working in conjunction with their strategic communications team, create and express brand-related media across many mediums, employing a cross-media communications strategy. This calls attention to the role played by digital media, and suggests cost savings associated with the systematic reuse of preexisting media assets across all chosen mediums.

Entertainment Mediaspace

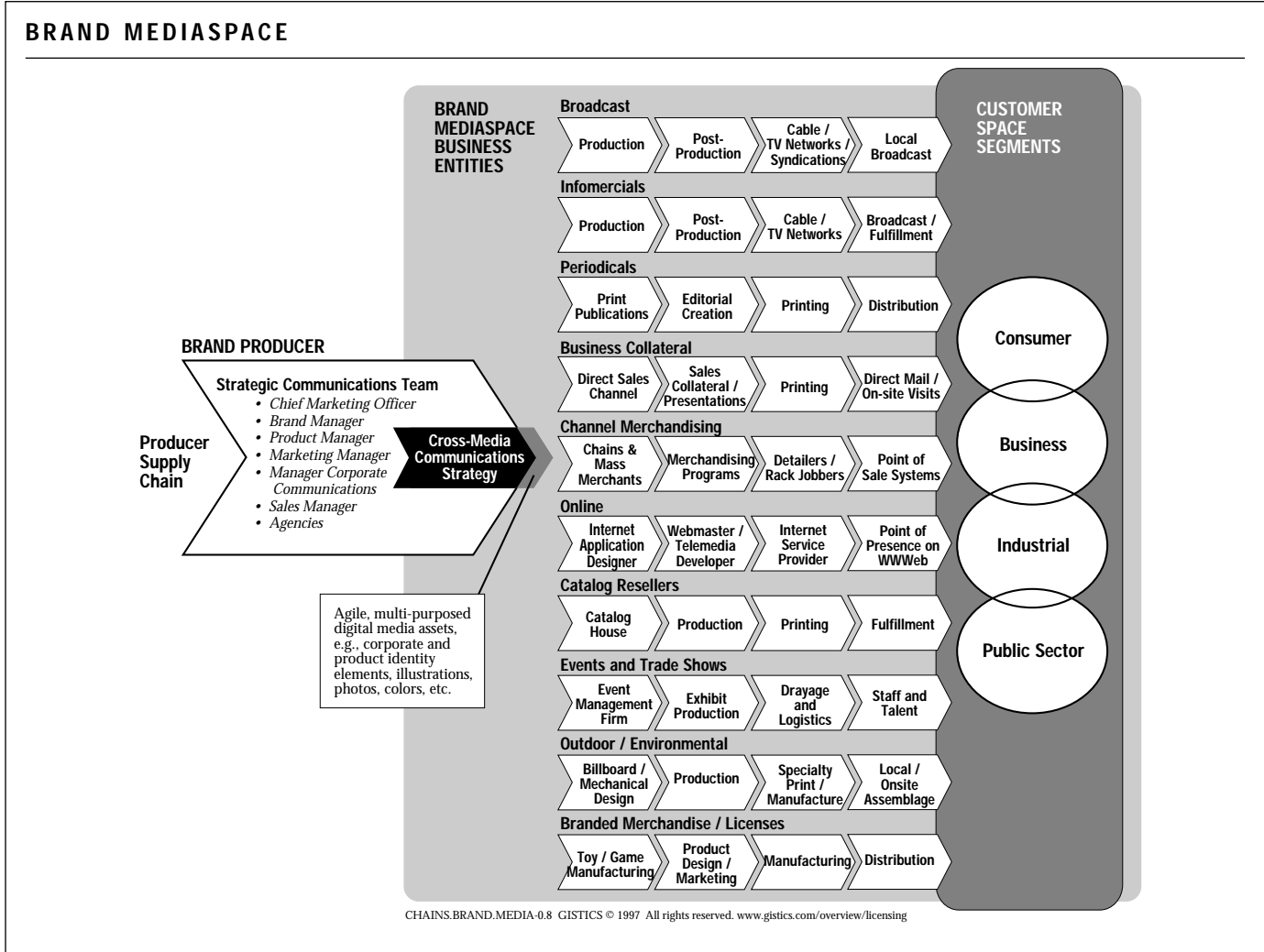
The entertainment industry consumes 8.1 percent of the production from the North American Media Producer Industry. Principally, entertainment properties start with the production of a motion picture, television show, or musical recording.

In a manner similar to the network of companies involved with brand-building media, a network of independent and captive business units as well as internal studio departments create or help produce these entertainment properties.

The entertainment industry emphasizes the highest production values achievable with current technologies and practices, showcasing a variety of visual and audio special effects, 3D animations, and computer graphics—all made possible with high-performance computing platforms.

Publishing

The Publishing subsector covers enterprises that create and distribute books, journals, audio-visual aids, non-entertainment videocassettes and films, posters, greeting cards, collectible cards, and reference works (e.g., statistical data, repair manuals, product directories)—publications that do not carry advertisements from third parties. It includes educational and governmental institutions. Altogether, the Publishing subsector consumes the remaining six percent of all media produced.



This value chain model clearly identifies the role of media in the \$1.5 trillion spent annually by brand producers worldwide in finding and serving their

customers. Time-to-market, quality, and cost advantages flow to those firms that master digital, cross-media communications strategies.

INDUSTRY COMPOSITION

The professional Media Producer Community consists of twelve major industry segments, each representing a small cluster of enterprise types. Generally, each segment constitutes a unique configuration of workflows and infrastructure requirements.

Advertising consists of 35,375 agencies, including those engaged in advertising and public relations—436,199 people.

Animations / Computer Graphics (CG) consists of 3,372 firms that produce CEL, 2D, 3D, and computer-based graphics for the entertainment industries as well as commercial accounts—63,414 people.

AV Production consists of 3,094 firms that produce audio-visual presentations for special events, including corporate sales conferences, stockholder meetings, business and association conventions, theatrical presentations, political campaigns, and live musical performances—93,717 people.

Digital Music consists of 4,238 studios and sound plants that produce recorded music, scores for feature film and television programming, voice-overs, dubbing, and sound effects for the entertainment industries as well as corporate accounts—217,901 people.

Desktop Publishing (DTP) / Production Services consists of 10,489 firms that produce all types of publications, including books, magazines, newsletters, corporate brochures, stationery, advertisements, catalogs, documentation manuals, etc., as subcontractors to advertising agencies, publishers, entertainment studios, and corporate accounts—323,608 people.

Film Production consists of 10,313 firms that produce feature films, documentaries, corporate films, and special interest videos—88,691 people.

In-House Brands consists of 59,743 commercial enterprises that market branded products; they have internal staff dedicated to media creation—717,223 people.

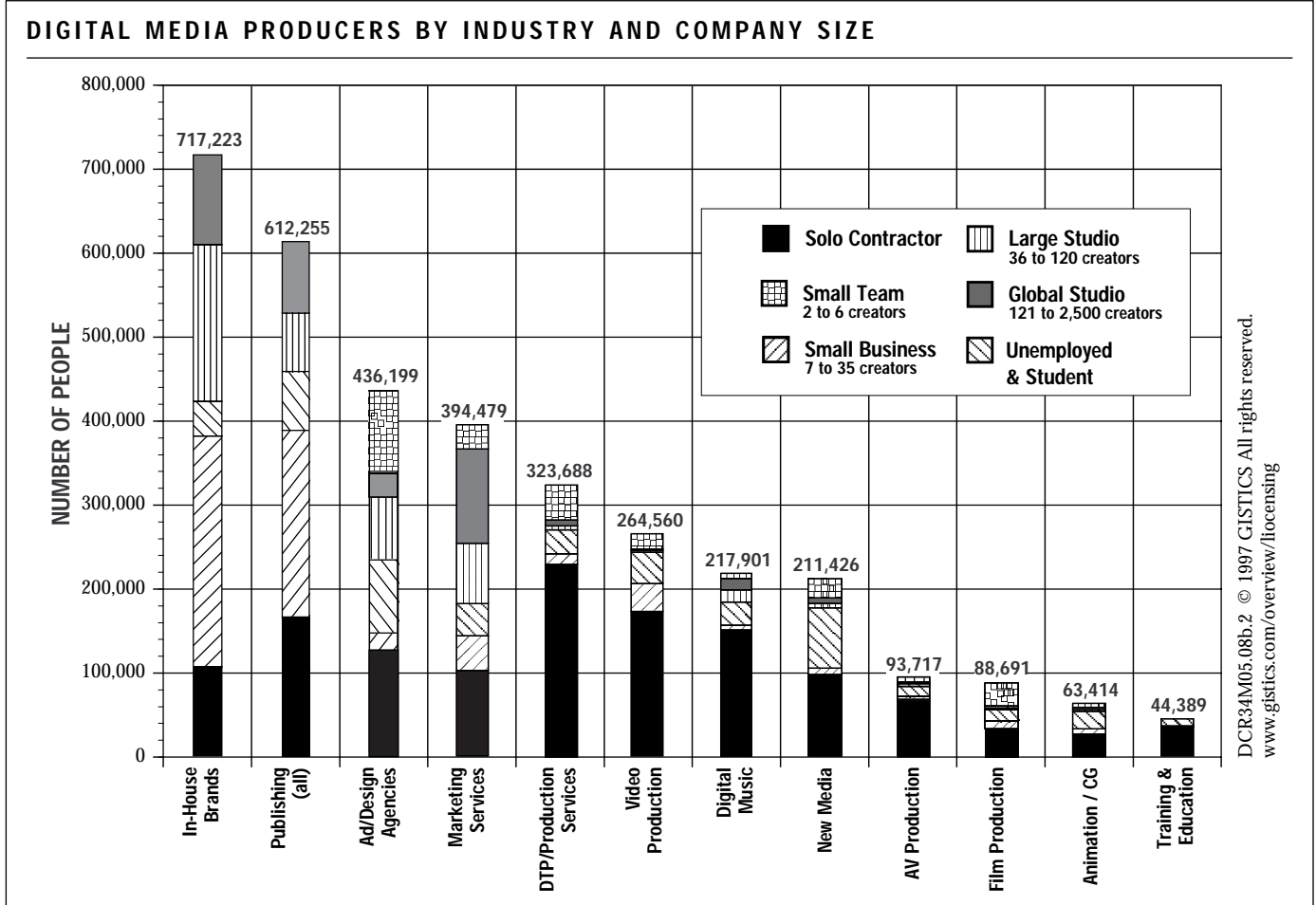
Marketing Services consists of 18,302 firms that produce marketing collateral or deliver related services; includes direct mail, catalog marketing, direct response marketers, public relations agencies, in-store merchandising specialists, special events and promotions—394,479 people.

New Media consists of 11,550 firms that design and / or produce interactive multimedia CD-ROMs, kiosks, Web sites, interactive learning systems, performance support systems, and corporate intranets—211,476 people.

Publishing consists of 37,220 firms that produce books, newspapers, magazines, newsletters, calendars, posters, occasion cards, comic books, and sports cards—612,255 people.

Training & Education consists of 16,701 organizations that create and / or deliver accredited curriculum, vocational and compliance-related training modules, discovery and self-help programs, and other on-the-job-related training materials—44,389 people.

Video Production consists of 10,890 firms that produce commercial video, or perform post-production and / or tape-duplication services—264,560 people.



Desktop Publishing (DTP), Digital Music, and Advertising / Design Agencies segments employ a larger number of solo contractors and small teams.

In-House Brands, Publishing, and Marketing Services consist of the largest number of Global and Large Studios, units with 35 or more media creators.

COMPANY SEGMENTS

Of 206,000 companies in the North American Media Producer Industry, four principal company segments lead the way in the employment of media-producing professionals: brand managers (as in-house functions of corporate enterprises), commercial publishing, advertising / design agencies, and video production houses. These segments employ 58 percent of all media-producing professionals.

The North American industry has a total of 458,508 work groups—formal and informal teams generally focused on projects—comprised of both employees and contract professionals. In some cases, especially those involving Web authoring and CD-ROM publishing, these teams may consist entirely of contract professionals working for a single client—what we call small teams.

The Student and Unemployed segment represents a significant portion of the industry as a whole and reflects changes in several key industry segments.

In the case of Publishing, mergers and acquisitions continue to eliminate jobs. Advertising and Marketing Services reflect both industry consolidations and the corporate reengineering of their clients (as indicated in the In-House Brands segment). Companies within the New Media segment continue to experience rapid shifts in demand for their services, displacing thousands of media professionals.

Company Sizes

The North American Media Producer Industry contains more than 100 types of businesses. GISTICS research has categorized these businesses into studios of five sizes, ranging from solo contractors to global studios.

Solo Contractors constitute 36.4 percent of industry employment, billing between \$50,000 and \$150,000 for one full-time professional year.

Small Teams with two to six active media producers constitute 8.2 percent of industry employment, with earnings between \$150,000 and \$900,000 per year for the team. Individual earnings vary, reflecting the size of the team, relative contributions to the project, and contractual agreements for the distribution of licensing fees and royalties.

Small Businesses with 7 to 35 active media producers constitute 25.8 percent of industry employment, and have operating costs between \$900,000 and \$3.5 million per year.

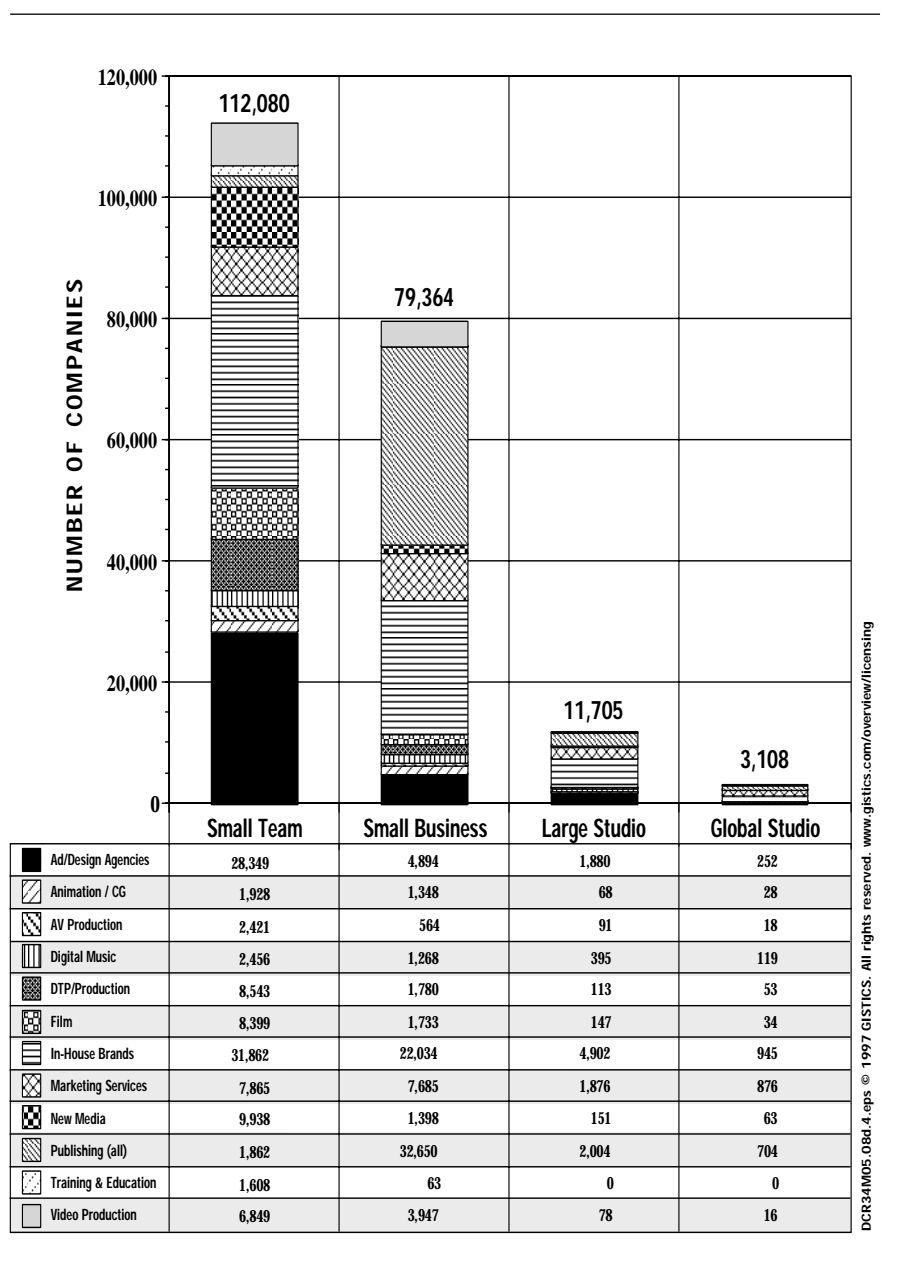
Large Studios with 36 to 120 active media producers constitute 14.4 percent of the industry, billing between \$3.5 and \$18 million per year.

Global Studios with 121 to 2,500-plus active media producers constitute 12.4 percent of industry employment, and represent at least 18 million dollars per year in media production costs.

While small teams and small business studios may work in large institutions, and often share many characteristics with their independent kin, they have radically different cost structures.

Small teams and studios in large institutions enjoy many corporate resources such as robust enterprise computing environment, generous employee benefits, and an active investment in ongoing skills development, training, and education—all resources generally not available to most independent small teams and small business studios.

INDUSTRY SEGMENT ANALYSIS - COMPANY CENSUS



The four largest segments, In-House Brands, Publishing, Advertising / Design Agencies, and Video Production, employ 58 percent of all media-producing professionals. The brand-related segments (House Brands, Advertising / Design Agencies and Marketing Services) employ 1,547,989—41 percent of the total industry employment (3,762,922).

CREATIVE PRACTICES

The annual industry assessment of the media producer community conducted by GISTICS categorizes creative and craft professionals in the following ten segments:

The **Animation** segment contains 148,640 media creators—individuals who earn more than 50 percent of their income producing 2D and 3D animations—including 142,424 who use computers as a creative platform.

The **CD-ROM Publishing** segment includes 209,465 authors and producers of interactive multimedia for corporate clients and entertainment publishers—all of whom use computers and earn more than 50 percent of this income performing this activity.

The **Desktop Publishing** segment includes 619,651 professionals who earn more than 50 percent of their income creating brochures, books, magazines, newspapers, greeting cards, etc., including 601,725 users of Adobe PageMaker and FrameMaker, QuarkExpress, and other page-layout software programs.

The **Digital Photography** segment contains 147,364 photographers, including 100,780 professionals who create, compose, enhance, or modify photo images with computer software. They earn more than 50 percent of their income in this activity.

The **Digital Video** segment consists of 419,476 individuals earning more than 50 percent of their income in this endeavor, including 408,809 who use computer software to create, compose, enhance, or modify video material.

The **Executive Management** segment consists of 394,758 individuals who manage creative professionals in the other nine segments, earning more than 50 percent of their income in this

activity. This segment includes 386,966 managers who use computers, owner-operators of small businesses and department managers with over 50 percent of work time spent on creating commercial media. This segment also includes account executives and others in client service positions involved in media creation as a support function.

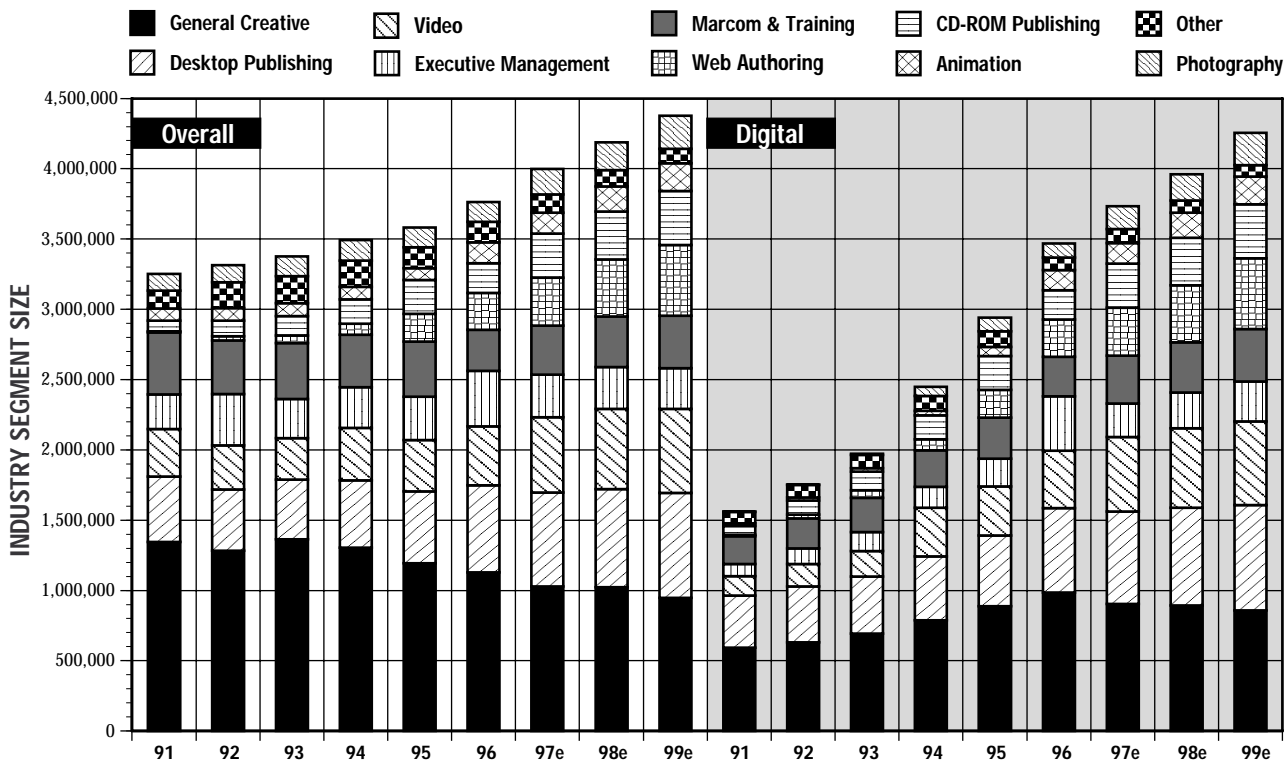
The **General Creative** segment contains 1,128,370 individuals who earn more than 50 percent of their incomes in some manner of media-creation, and 984,220 who use computers for a combination of page layout, illustration, photography, audio / music production, or Web authoring—none of which activities constitutes more than 50 percent of their total creative time. This segment also includes professionals in other media craft areas considered too small for statistical significance in the GISTICS annual census (e.g., digital audio and EFX artists, imaging and digitization specialists, telecine specialists, compressionists) who may nevertheless engage in one primary activity.

The **Marcom & Training** segment consists of 291,379 individuals involved in enterprise corporate functions of marketing communications, public relations, investor relations, or training, and who earn more than 50 percent of their income in one or more of these areas. More than 280,000 of this group use their own desktop computers to perform their jobs; the remainder utilize general office equipment and rentals.

The **Web Authoring** segment consists of 264,182 individuals earning more than 50 percent of their income creating Web pages.

The **Other** segment combines 87,981 programmers, MIS personnel, and miscellaneous individuals who support media creators.

CREATIVE PROFESSIONALS BY PRIMARY PRACTICE



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The historic shift from manual, analog production means to digital production continues unabated, emphasizing three major benefits of digital production: greater efficiency (lower cost and shorter time-to-market cycles), higher

quality (more options to improve or iterate an idea), and greater management oversight and control of the production process (systematized workflow and project management).

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INDUSTRY SPENDING

In the year 1996, the North American Media Producer Industry made \$18.5 billion in purchases: \$6.8 billion (36.9 percent) in computer hardware, networking equipment, and related infrastructure; \$3.2 billion (17.7 percent) in peripherals; \$5.4 billion (28.9 percent) in software; \$3 billion (16.5 percent) in learning and support.

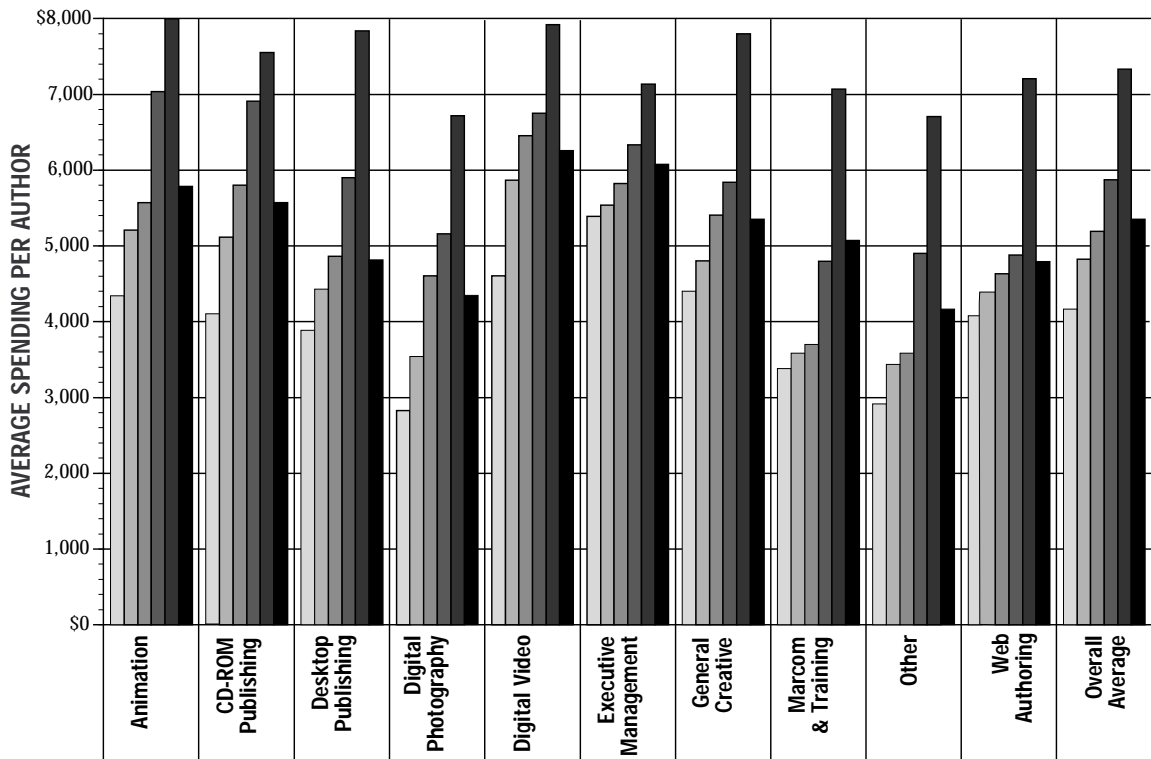
Overall, Global Studios spent almost twice as much per media creator as Solo Contractors and Small Teams, underscoring investment in high-speed networks, the latest hardware and software advancements, and training and support. This reflects the considerable financial resources at the disposal of larger studios and their

sophisticated management appreciation of the competitive advantages realized through productivity gains.

Global and Large studios spend proportionally higher dollar amounts in training and support. Thousands of media creators use this as an opportunity to acquire intellectual capital before starting their own firms.

At the other end of the spectrum, Solo Contractors, Small Teams, and Small Businesses successfully compete with their creativity and nimbleness. Because they cannot afford to spend what the largest studios manage, they must make their technology dollars work even harder by buying the most productive systems available.

AVERAGE SPENDING FOR MEDIA PRODUCERS BY COMPANY TYPE — 1996



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Large studios outspend smaller ones almost twice as much. Large studios invest more in training, high speed networks, new tools, and user support than small studios. Small studios, including solo contractors and small teams,

successfully compete on the basis of their creativity and ability to spot and exploit rapidly emerging opportunities—often as a result of new technologies (e.g., Java) or methodologies (e.g., database publishing of Web pages).

PRODUCTIVITY ANALYSIS

GISTICS analysis of productivity for the professional media producer incorporates activity-based research of 21,228 individuals. This research examined both computer-based and non-computer-based activities, categorizing time and cost data from 50 individual elements of a work day. For the purposes of this paper, we have summarized this data into ten categories, five computer-based and five non-computer-related. (For more on the GISTICS research methodology, please see page 36.)

Key Findings

When comparing the productivity of users of Power Macintosh and Window NT systems, findings show the Macintosh user will realize an annual productivity gain of an average **304** hours.

Overall, non-computer-based work averages 35 percent and computer-based work the remaining 65 percent of a typical creative work day. Windows-based non-computer work averages 39.5 percent, compared with Macintosh users spending 31 percent of their time off the computer.

This means that a **Macintosh user will finish (and bill for) more work** over a professional year than will a Windows user.

The Mac user will spend 14.7 percent more time on the primary activity of authoring and composition than a Windows user.

Windows users spend 6.1 percent more time on computer-support activities than Mac users. The Mac user spends more time on profitable activities.

Windows users spend 8.5 percent more time in offline, non-computer activities (other administrative duties, off-site meetings, training, etc.) over Macintosh users. Mac users spend more time on their computers doing creative work.

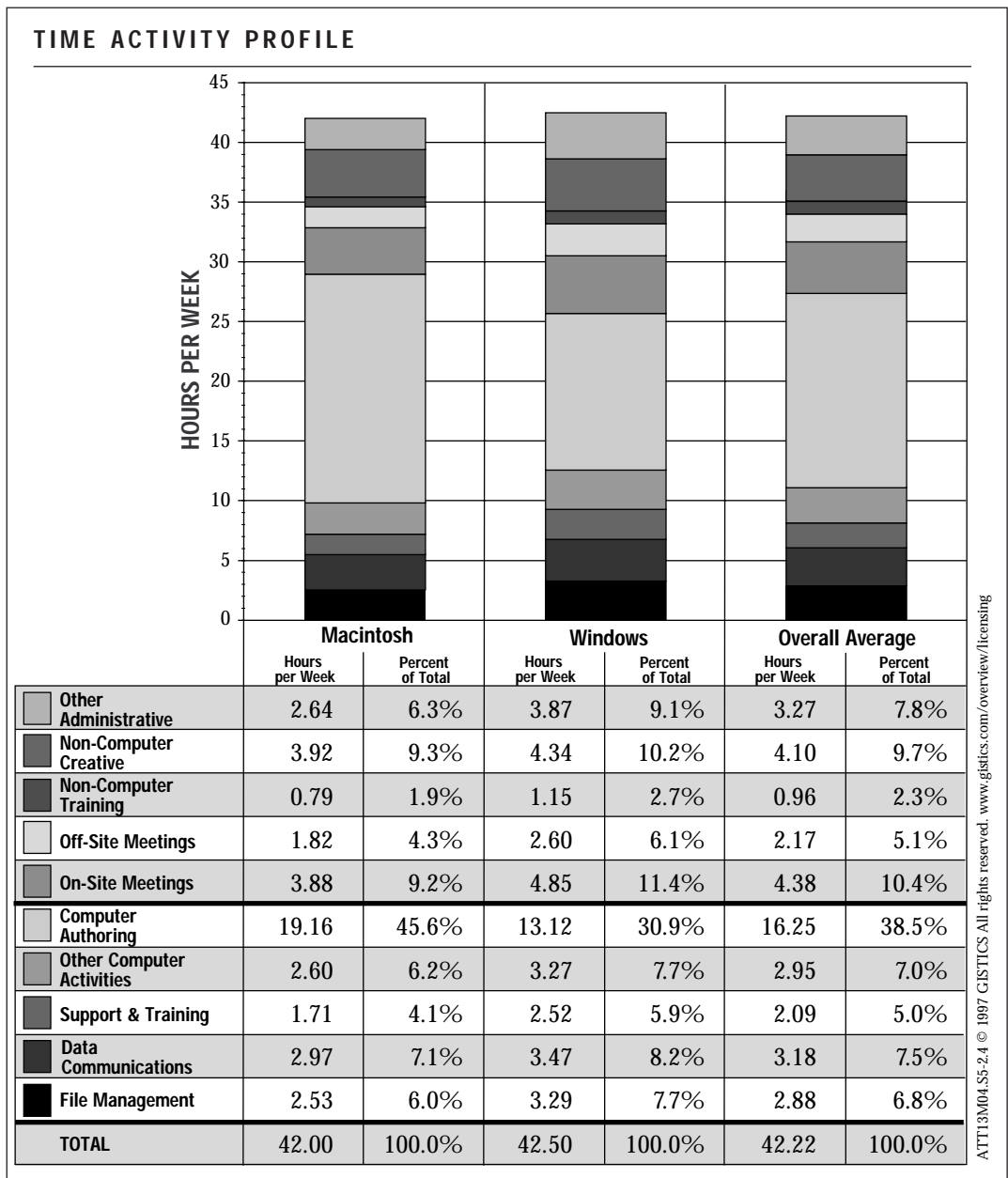
Activity Profile

The work day of a media creator consists of both computer-based and non-computer-based activities.

Computer-based activities consist of five primary activity categories: computer authoring, file management, data communications, support & training, and other computer activities (general productivity applications used by a media creative).

Non-computer-based activities consist of five primary activity categories: onsite meetings, offsite meetings, non-computer-related training, non-computer-related creative development (e.g., sketching, physical model creation), and other administrative duties.

Each primary activity has within it five sub-activities (50 in all), enabling a comprehensive and inclusive analysis of all significant



This chart and table illustrate how Macintosh and Windows users allocate their time in actual production studio environments (i.e., real world versus artificial benchmark-contrived lab experiments). Systemic “futzing” characterizes the Windows environment—they spend less time in the principal activity of authoring and more time in non-economic activities of “administrivia” and work-arounds.

PRODUCTIVITY COMPARISON

This chart and table illustrate how Macintosh and Windows users allocate their time in actual production studio environments (i.e., real world versus artificial benchmark-contrived lab experiments).

Systemic “futzing” characterizes the Windows environment—users spend less time in the principal activity of authoring, and more time in non-economic activities of “administrivia” and work-arounds.

The average Macintosh user (of both 68000 and PowerPC platforms) spends 302 more hours per year in the computer authoring activity than the Windows user, producing more work in the same period. (PowerMac users average 334 hours—data not isolated in the chart below.)

A more detailed analysis of this rather startling fact reveals a host of contributing factors.

Windows users spend 21 more hours in non-computer-related creative efforts, e.g., drawing with paper and pencil.

They spend 48.5 more hours in on-site meetings, reflecting the need for more project coordination and traffic management.

They spend 25 more hours in data communications. Principally this entails transferring files via networks and physical media, including the extra time taken to deal with non-plug-and-play peripheral devices, sluggish network file services associated with

Windows NT, and the need to retransmit files due to font and PostScript processing errors.

Windows users spend 33.5 more hours using basic office tools (e.g., word processing). In part, this reflects the needless complexity of current office productivity tools.

They spend 38 more hours in file management: searching directories, verifying the right file, file reorganization, and basic house-keeping.

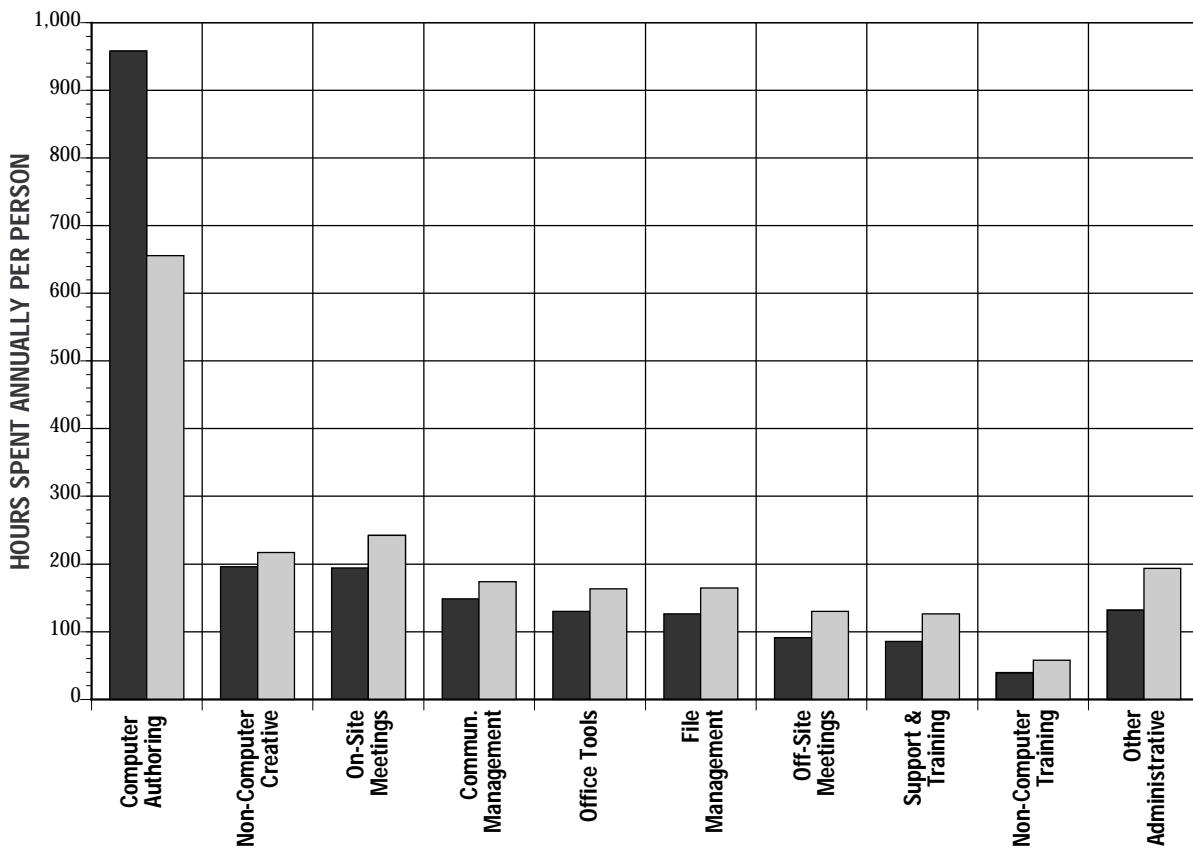
Windows users spend 39 more hours per year in offsite meetings than their Macintosh counterparts, reflecting both the need for more client contacts (suggesting quality-of-work issues) as well as extracurricular educational events such as trade shows.

They spend 40.5 more hours in support and training activities, including formal and informal support, reading print and online documents, and recovering from system faults and glitches introduced with newly installed software, drivers, utilities, plug-ins, hardware peripherals, etc.

Windows users spend 18 more hours in non-computer-related training. They spend 61.5 more hours per year in other administrative activities.

All these activities consume time more productively spent in the primary economic activity of authoring.

COMPARISON OF WORK HOURS SPENT: MAC VS. WINDOWS



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This data suggests that several qualitative differences exist between Mac and Windows users. In fact, a significant number of professional Windows users work in corporate departments that do not apply the same level of account-

ability to the bottom-line results as do the small owner-operators of media-producer firms—firms where, not coincidentally, Macintosh systems tend to dominate.

LABOR COST

A calculation for a fully burdened hour of labor includes salary and benefits for a class of media producers. On average, 63.1 percent of media production costs comprise the fully burdened labor costs.

More than half of that amount (38.12 percent) goes to individual salaries and bonuses. The remainder—stock compensation and licensing fees (6.58 percent), health and pension benefits (5.2 percent), management overhead (7.65 percent), personal computer purchases or company “loan to own” systems (1.64 percent), computer support (1.48 percent), and paid training, associations, and conferences (2.5 percent)—make up the 25.05 percent not in the primary category of salaries and bonuses.

Company costs, including marketing, computers, software, phone and communications, office space, and administration costs, consume 23.31 percent; they also include all of the expenses associated with keeping a creative professional productive—periodic hardware and software upgrades, and networking services. This leaves 13.55 percent net profit before taxes.

Roughly translated, the labor costs demonstrated in the figure below represent how much a business pays to have a media professional on staff. It remains no coincidence that the fully burdened labor rate will roughly correspond to the rate of an independent contractor.

Labor Cost Comparisons

In the **Overall** segment, which represents an industry-wide average, Macintosh users earn \$55.52 per hour, \$5.01 more than a Windows user earning \$50.51 per hour.¹

Animation segment Macintosh users earn \$54.11 per hour, \$8.08 more than a Windows user (\$46.03 per hour).

CD-ROM Publishing segment Macintosh users earn \$54.98, \$10.10 more than a Windows user (\$44.88 per hour).

Desktop Publishing segment Macintosh users earn \$45.35, \$7.48 more than a Windows user (\$37.65 per hour).

Digital Photography segment Macintosh users earn \$48.96, \$5.20 more than a Windows user (\$43.76 per hour).

Digital Video segment Macintosh users earn \$61.90, \$7.92 more than a Windows user (\$53.98 per hour).

Executive Management segment Macintosh users earn \$89.13, \$17.24 more than a Windows user (\$71.89 per hour).

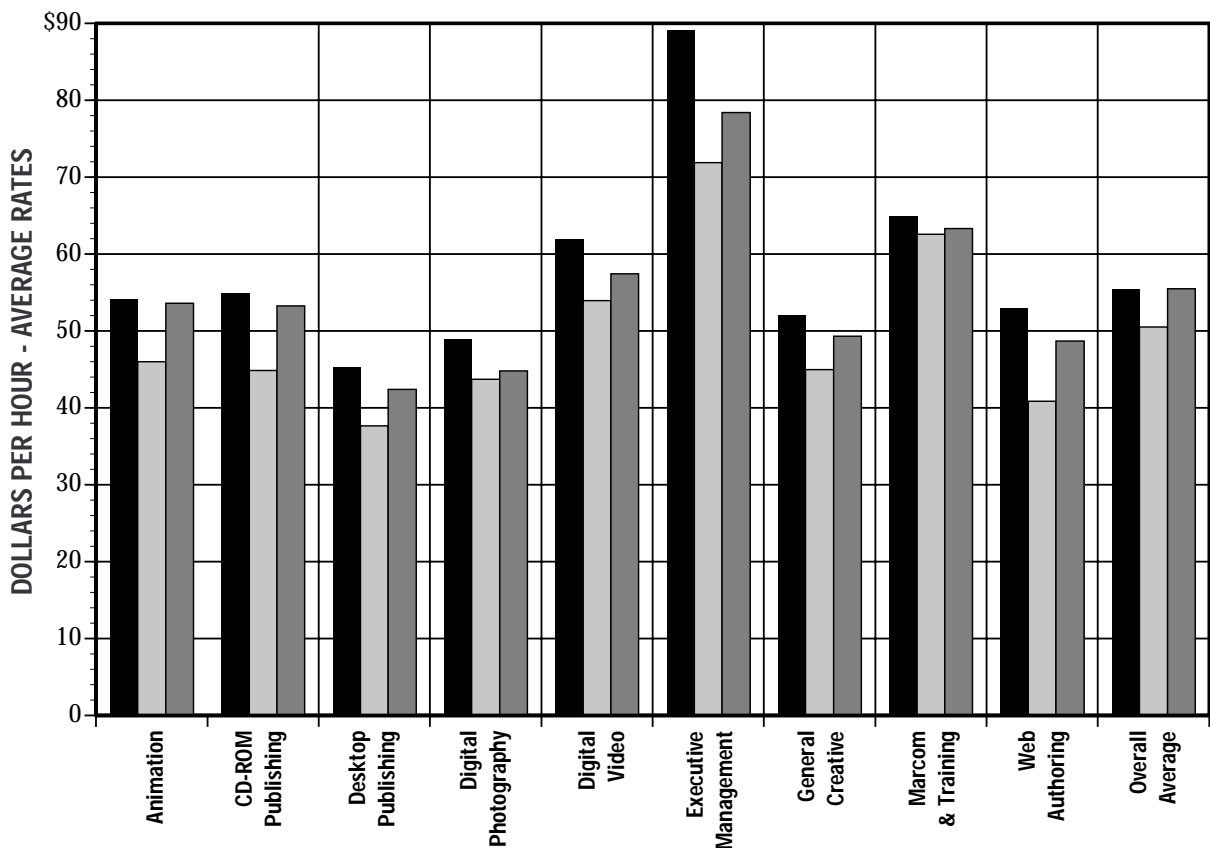
General Creative segment Macintosh users earn \$52.12, \$7.14 more than a Windows user (\$44.98 per hour).

Marcom & Training segment Macintosh users earn \$64.92, \$2.35 more than a Windows user (\$62.57 per hour).

Web Authoring segment Macintosh users earn \$52.96, \$12.09 more than a Windows user (\$40.87 per hour).

¹ GISTICS Comprehensive Audit of Media Professionals, Development Practices, and Business Methods—1996.

FULLY BURDENED LABOR COST BY PRACTICE AND PLATFORM



Mac	\$54.11	\$54.98	\$45.35	\$48.96	\$61.90	\$89.13	\$52.12	\$64.92	\$52.96	\$55.52
Windows	46.03	44.88	37.65	43.76	53.98	71.89	44.98	62.57	40.87	50.51
Average	53.62	53.28	42.43	44.80	57.46	78.44	49.31	63.33	48.68	55.50

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REVENUE OPPORTUNITY

Each hour that a studio “buys” from its creative professional, it “sells” to its customers at a higher rate in the form of billed project fees or straight hourly charges.

The corporate billing rates shown in the figure below illustrate a consistent pattern: Macintosh-based businesses earn significantly higher income per hour of labor than those firms based on Windows technology.

Overall Industry Average indicates that Mac-based firms earn \$12.22 more per hour of labor than their Windows counterparts.

Of Mac-based firms, Executive Management firms earn \$28.71 more per hour, those in Web Authoring earn \$26.29 more, and those in General Creative earn an additional \$17.30.

The revenue gap between Macintosh- and Windows-based firms remains the most narrow in Marcom & Training (\$4.85). GISTICS believes that exists largely due to the stronger positioning of Windows technologies in large enterprise environments.

The higher revenue rates enjoyed by Mac-based firms largely underscore why they can afford to pay their workers more money—an average of \$5.01 more per hour.

Preliminary economic trend analysis indicates that the revenue differential between firms relying on Mac and Windows will continue to widen.

Overall, the productivity growth of Mac users (and their firms) will continue to grow faster than that of Windows users, reflecting several interrelated factors examined later in this paper.

This means that Mac-based firms will initiate, complete, and bill for incrementally more work per person than Windows-based firms, generating more revenue and profit well into the future. This also suggests why earnings of Mac users will continue to grow faster than those of Windows users.

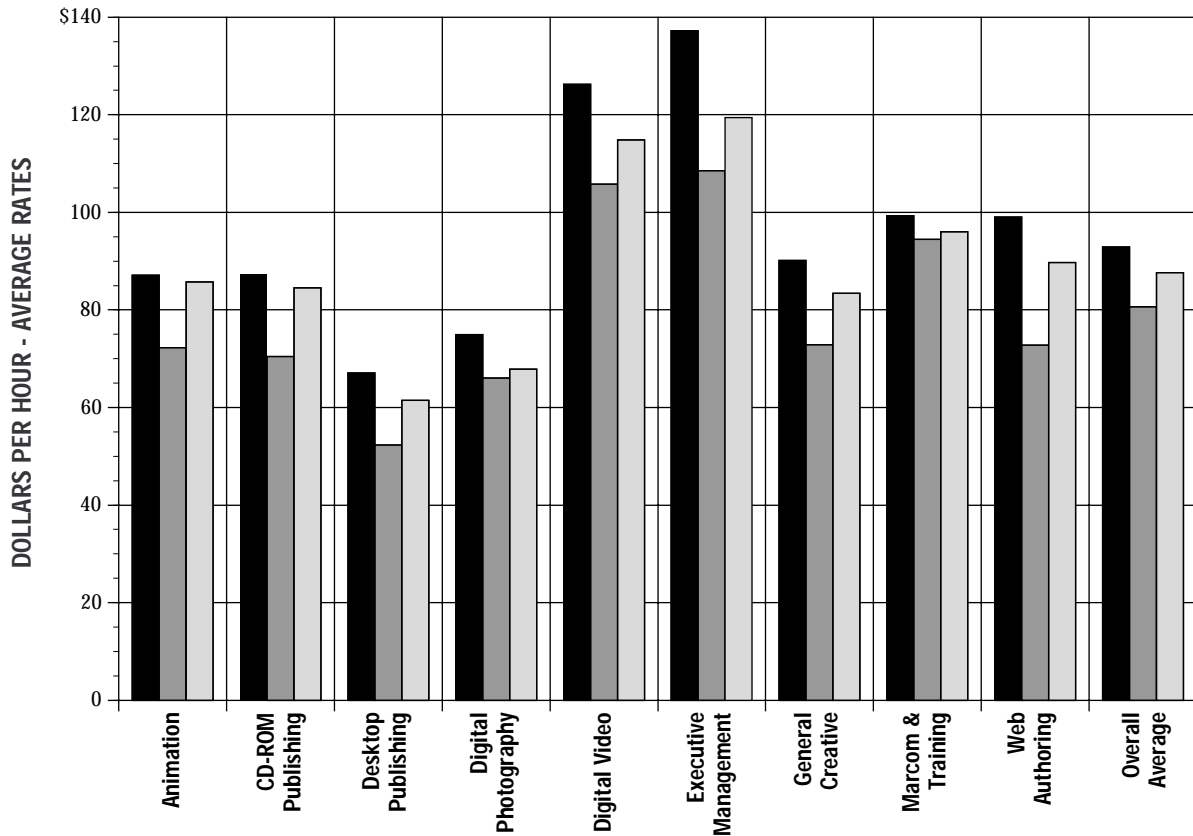
Implications for Management Action

These small differences in hourly billing rates become quite significant when considering the 1,300 to 2,100 hours that a studio bills per media professional over the course of a year.

Management must take into account the number of media professionals that it employs, multiplying that number by an annualized per-person billing differential.

Clearly these data support the conclusion that deployment of Windows technology in professional production environments does not maximize profits. Under many circumstances prudent managers must come to view Windows deployment as a breach of fiduciary responsibility—a substantial, ongoing loss of profit that in no way justifies said deployment.

CORPORATE BILLING RATES BY PRACTICE AND PLATFORM



	Mac	\$87.12	\$87.42	\$67.12	\$74.91	\$126.28	\$137.26	\$90.17	\$99.33	\$99.04	\$92.87
	Windows	72.27	70.46	52.33	66.08	105.80	108.55	72.87	94.48	72.75	80.65
	Average	85.75	84.56	61.51	67.85	114.87	119.46	83.38	96.06	89.72	87.60

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COMPUTER-BASED ACTIVITY BENCHMARKS

File Management

This activity encompasses time spent in five subordinate activities: looking up files, verifying the right file, naming and categorizing files and folders, reorganizing files and folders, and securing back-ups and authorized access to files.

Macintosh users spend less time “futzin’ with files.” Windows users encounter significantly more hindrances in performance of each of these activities. This calls attention to a litany of shortcomings of Windows: sub-optimal means for scrolling through a folder; a requirement to perform more “mental gymnastics” in navigating a file manager (due to heavy influence of an older DOS file management system); more limitations on file names (more “illegal” file names and the inability to automatically convert these into “legal” expressions, e.g., change a “/” to a space); a greater likelihood that a Windows to Windows file transfer will result in an “unreadable” file.

Macintosh files stay linked to applications, unlike the inconsistent performance of Windows 95 file linkage. The Macintosh re-sorts folders when adding new items, Windows 95 doesn’t.

Overall, Windows users in media production environments waste \$5,436 annually per person over Macintosh users in the activity of file management. This large amount reflects the fact that creative professionals manage an average of 2,985 graphic files and perform an average of 76.4 file look-ups per week.

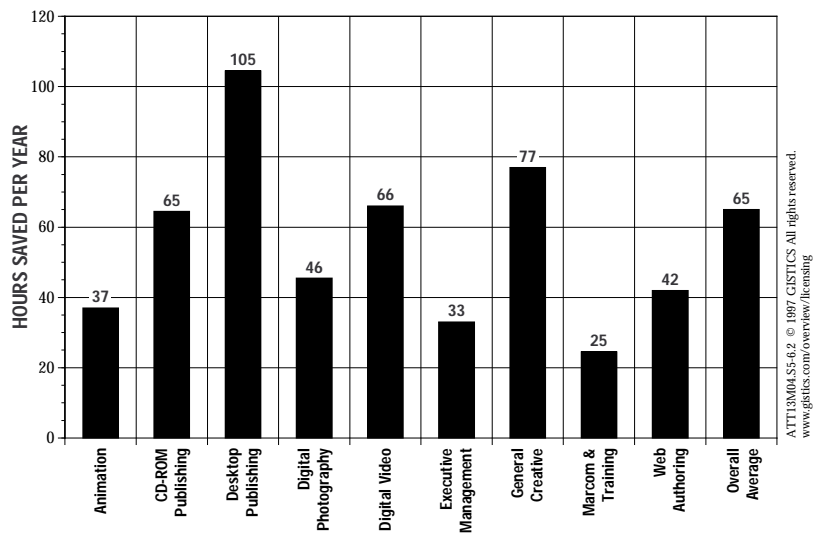
The superior file-management capabilities of the Macintosh save Desktop Publishing professionals \$6,428 per year over their Windows-based colleagues, representing an annual savings of 105 hours—a weekly savings of 2.09 hours.

As indicated earlier, the Executive Management and Marcom & Training segments do not realize as much productivity savings in file management because they do not spend the bulk of their time producing media. Rather, they spend it in other activities such as meetings.

Between 1995 and 1996, file management productivity improvements brought \$1,712 more to the bottom line for Macintosh users. This means that 11.8 percent of the Macintosh advantage comes from file management productivity improvements. This will increase as more creative professionals begin to adopt asset management—a practice more fully and easily supported by Mac OS technologies.

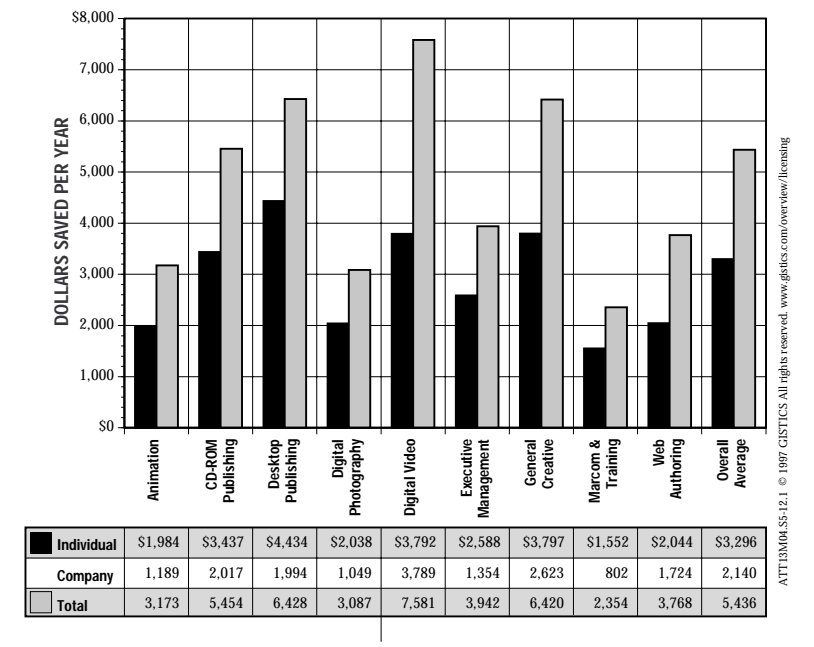
For more information on this subject, request our Ask How Guides for Asset Management for your size organization (research@gistics.com).

ANNUAL MAC SAVINGS FROM BETTER FILE MANAGEMENT



Mac users in Desktop Publishing, General Creative, Digital Video, and CD-ROM segments realize the highest annual savings from better file management.

MAC O.S. FILE MANAGEMENT DOLLAR SAVINGS



The Overall Average (industry-wide) indicates that each Mac user recoups productivity-based gains of \$5,436 from superior file management. Of this total, \$3,296 relates to individual productivity savings, and the remainder, \$2,140, derives from work group productivity and company revenue enhancements. Each Mac user in the Digital Video segment realizes \$7,581 in productivity, combining individual and work group savings as well as revenue enhancements for the firm.

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Data Communications

This activity encompasses time spent in five subordinate activities: E-mail on corporate networks, faxing (addressing and sending), transferring files (via diskette, disc cartridge, CD-ROM, tape cartridge, videotape, or across networks), using public online services, or miscellaneous other activities, including use of pagers and teletext.

Data communications savings derived by Macintosh users arise from more compact file formats, better transfer protocols, fewer transmission mishaps (and, therefore, fewer retransmissions of the same file), and fewer retransmissions of the wrong file (a result of less "friendly" file management and folders).

These differences in total reflect the overall ease of use and higher degree of hardware, software, and network integration of the Macintosh system compared to Windows platforms.

Floppy disk information exchanges remain a snap with Macintosh computers compared to Windows machines. Media professionals transfer an average of 21.1 creative files per week among 6.07 people that constitute the typical work group. Despite the fact that Macintosh users send more files (and often sends them to more people), they actually spend less time delayed by the transmission process.

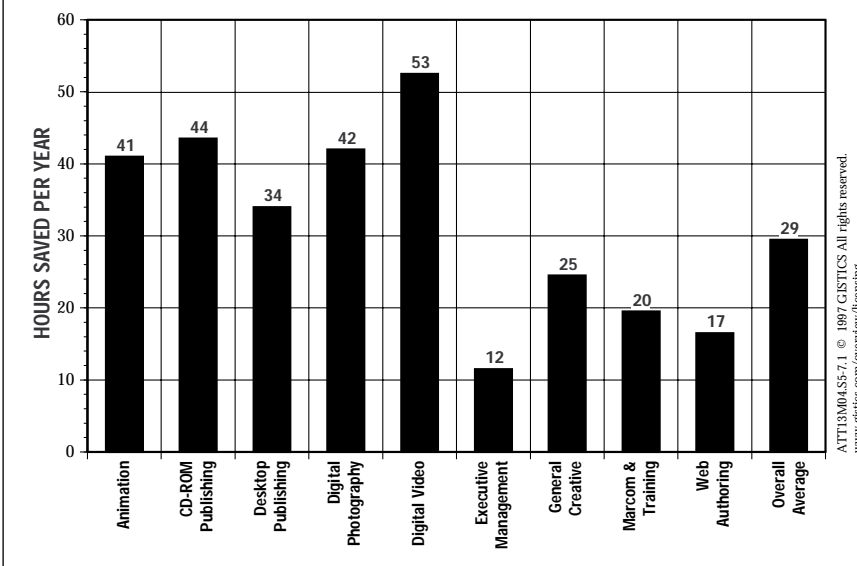
Digital video professionals using Macs realized the greatest benefit—53 hours saved compared to Windows users, an annual savings greater than \$6,000 per user.

QuickTime™ technology, AppleScript™ (a simple and easy-to-use script automation tool), built-in Ethernet and TCP/IP network interfacing—foundation technologies of the Macintosh—contribute most to this advantage.

Between 1995 and 1996, data communication productivity improvements brought \$990 more to the bottom line for Macintosh users. This means that 6.8 percent of the Macintosh advantage comes from productivity improvements in data communications.

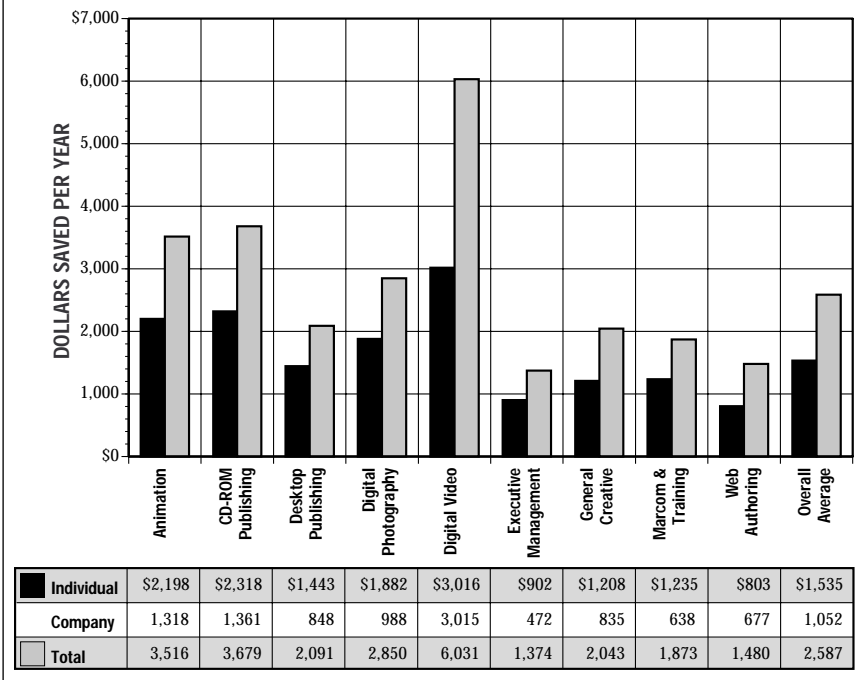
With the introduction of the MultiFinder in Version 8 of the Mac OS, users will likely derive a significant benefit in 1997. For more on future benefits, see the following section, **Foundation Technologies** (page 17).

ANNUAL MAC SAVINGS FROM BETTER DATA COMMUNICATIONS



Mac users in Digital Video, CD-ROM Digital Photography, and Animation segments realize the highest productivity gains over their Windows colleagues from better data communications—primarily "moving bits" to co-workers via floppy, removable hard-disks, and file transfers over networks.

MAC O.S. DATA COMMUNICATIONS DOLLAR SAVINGS



The Overall Average (industry-wide) indicates that each Mac user recoups \$2,587 in productivity gains. Of this total, \$1,535 represents individual productivity gains, and the remainder, \$1,052, relates to work group productivity and company revenue enhancements. For the group that realized the greatest benefit, a Mac user in the Digital Video segment realizes \$6,031 in productivity benefits, combining \$3,016 in individual and \$3,015 in work group savings and revenue enhancements for the firm.

Support and Training

These activities encompass time spent in five subordinate activities: self-directed problem-solving, supported problem-solving, software and Internet training, hardware and network training, and other computer-related productivity practices.

For monitors, printers, and scanners, true plug-and-play remains the unmatched hallmark of the Macintosh. The highly touted plug-and-play of Windows 95 fails approximately 50 percent of the time, especially for SCSI port devices, video displays requiring their own interface cards, and networks. Windows NT does not support plug-and-play, penalizing the user for each "change" with technical support episodes lasting several hours to days; in some cases, especially those involving plugging into local area networks, these episodes consume 20 to 30 days!

Better self-diagnostics and easier swap-out designs make Macintosh computers simple to repair.

On average, each Windows user spends \$429 more per year learning to use their system. It also costs each Windows user an average \$1,043 more per year to get the support needed to solve configuration and installation issues. This totals \$1,472 more per year in direct support costs. (These figures do not represent personal time spent but include time spent by associates, support personnel, or paid consultants—another significant and largely unaccounted-for productivity "hit" associated with Windows platforms.)

User support and training "soft costs"—personal time spent—average \$4,332 per year more than Macintosh-based creative professionals. This represents lost revenue, with \$2,596 not going to the creative professional, and \$1,736 not going to profit contributions.

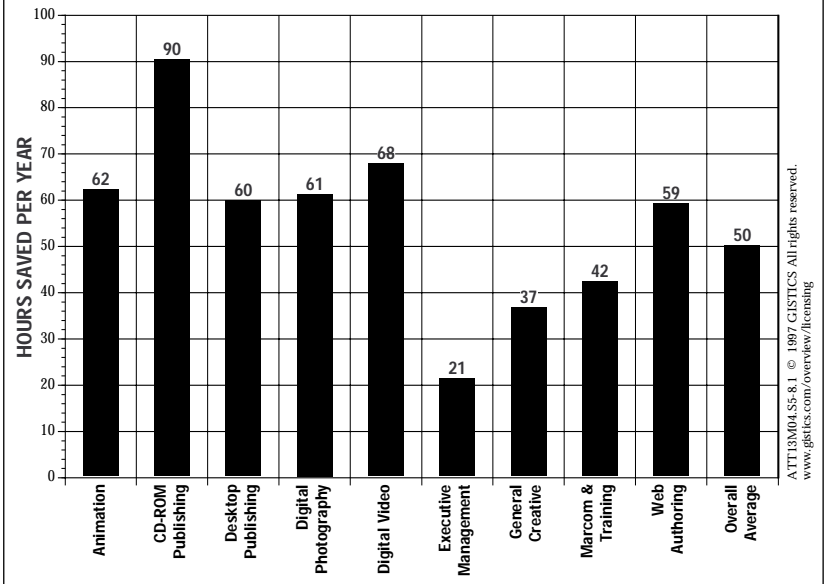
The makes the grand difference of \$5,804 (including both direct support and soft costs) one of the biggest distinctions between the Macintosh and Windows platforms.

Analysis of application use typically shows Mac training and support at 85.3 hours per year (6.1 hours per application) versus 126 hours spent by Windows users (15.7 hours per application). This reveals a 61.2 percent Macintosh productivity improvement over Windows users per application. In every practice group, Macintosh provided greater ease of use and required users to spend less time to become proficient.

An explicitly defined and widely adopted Macintosh Human Interface Guideline (MHIG) has ensured that thousands of third-party applications from hundreds of vendors share a "deep, intuitive user interaction" model—they work in the same way. This explains why Mac users typically master twice as many tools as their Windows counterparts. Similar design approaches between applications make it easier to learn and use programs.

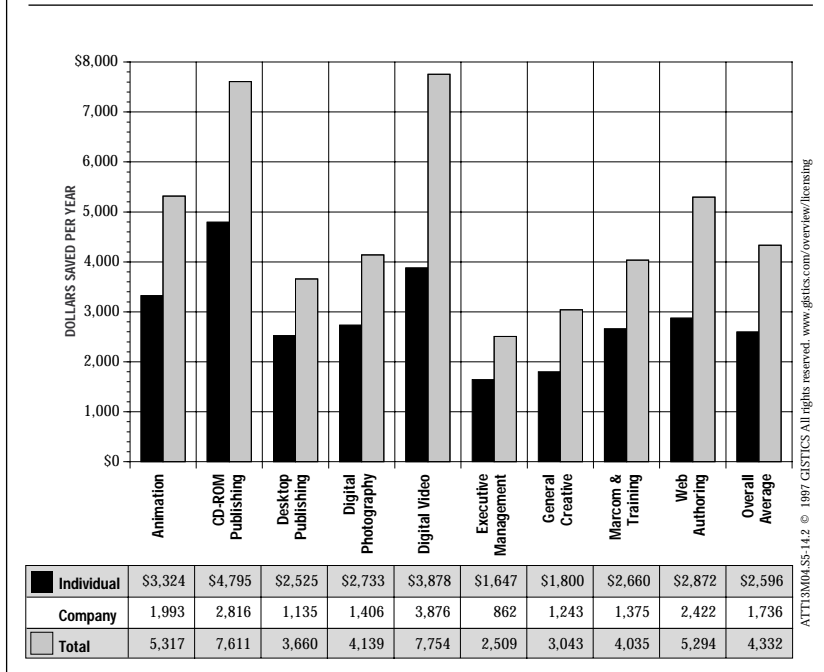
Between 1995 and 1996, support and training productivity improvements brought \$1,715 more dollars to the bottom line for Macintosh users. This means that 11.8 percent of the Macintosh advantage comes from support and training productivity improvements.

ANNUAL MAC SAVINGS FROM LOWER SUPPORT AND TRAINING



Mac users in CD-ROM, Digital Video, Animation, Digital Photography, Desktop Publishing, and Web Authoring realize the highest productivity gains over their Windows colleagues from lower support and training requirements.

MAC O.S. SUPPORT AND TRAINING DOLLAR SAVINGS



The Overall Average (industry-wide) indicates that each Mac user recoups \$4,332 in productivity gains. Of this total, \$2,596 represents individual productivity gains, and the remainder, \$1,736, relates to work group productivity and company revenue enhancements. For the group that realized the greatest benefit, a Mac user in the Digital Video segment realizes \$7,754 in productivity benefits, combining \$3,878 in individual and \$3,876 in work group savings and revenue enhancements for the firm. A Mac user in the CD-ROM segment realizes \$7,611 in productivity benefits, combining \$4,795 in individual and \$2,816 in work group savings and revenue enhancements.

Other Computing Activities

These activities encompass time spent in five subordinate activities: Business-related reports, project-related reports, promotional writing (e.g., proposals, collateral, and promotional copy), correspondence (with contractors, vendors, employees, and clients), and other miscellaneous tasks associated with databases, personal information managers, et cetera.

The differences in time spent reflect several factors: greater consistency in the user interface among application software programs provided by different vendors who have adopted a uniform set of interface conventions; easier, more reliable automated exchanges of data among application programs (the result of a more stable, complete implementation of the publish and subscribe features of the Mac OS; faster, less problematic manual transfer of data from one program to another (Mac users do not have to reformat media files as often as Windows users). Additionally, Mac users can more easily, and more reliably, insert low-resolution "thumbnails" of images in documents and HTML pages. AppleScript automation also plays an important role in automated operations (e.g., dragging items from hot folders to desktop and opening them). It remains easier to check memory and move between applications, and far easier to cut and paste graphics between applications.

On average, Macintosh users save \$1,897 over Windows users. Between 1995 and 1996, support and training productivity improvements brought \$1,641 more dollars to the bottom line for Macintosh users. This means that 11.3 percent of the Macintosh advantage comes from interactive data transfer between programs.

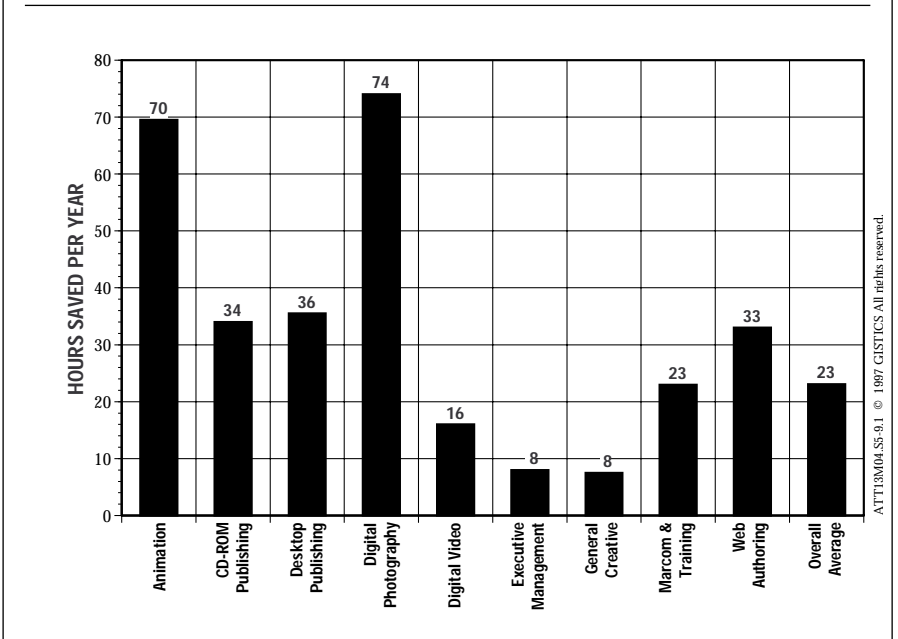
Foundation Technologies

The standardization of media lies at the base of these operating system differences and formats.

Apple has successfully promoted MIDI, QuickTime, and ColorSync™ technologies to the point that they have become standards supported outside the Macintosh environment. Between 1995 and 1996, foundation technology productivity improvements such as ColorSync brought \$3,093 more to the bottom line per year for Macintosh users. This means that 21.4 percent of the Macintosh advantage comes from foundation technology productivity improvements. This figure will increase as authors discover the power of AppleScript, QuickTimeVR™, speech, and videoconferencing to enhance their applications.

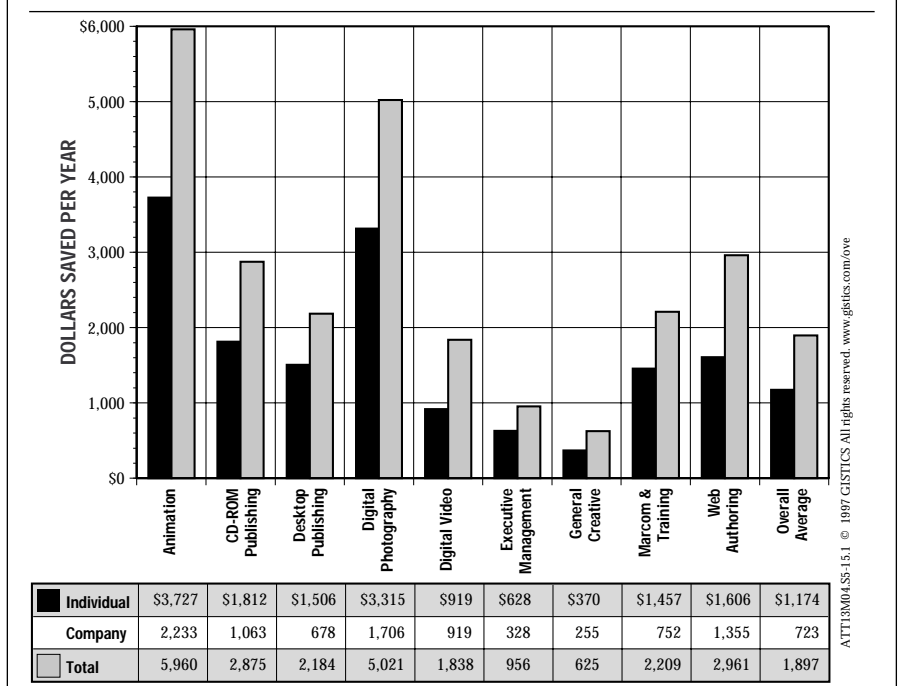
For more on this subject, see page 28, and forthcoming GISTICS papers.

ANNUAL MAC SAVING—OTHER COMPUTING ACTIVITIES



Mac users in Digital Photography, Animation, Desktop Publishing, CD-ROM, and Web Authoring realize the highest productivity gains over their Windows colleagues in the general area of office computing, e.g., writing reports, managing project databases, and correspondence.

OTHER COMPUTING DOLLAR SAVINGS OF THE MAC O.S.



The Overall Average (industry-wide) indicates that each Mac user recoups \$1,897 in productivity gains. Of this total, \$1,174 represents individual productivity gains, and the remainder, \$723, relates to work group productivity and company revenue enhancements. For the group that realized the greatest benefit, a Mac user in the Animation segment realizes \$5,960 in productivity benefits, combining \$3,727 in individual and \$2,233 in work group savings and revenue enhancements for the firm. A Mac user in the Digital Photography segment realizes \$5,021 in productivity benefits, combining \$3,315 in individual and \$1,706 in work group savings and revenue enhancements.

Authoring

While computer-based authoring and composition defines the principal economic activity of creative professionals, they must perform other duties—what we call “desktop administrivia.”

When creative professionals devote more time to the primary activity of authoring and composition, they will generally produce more finished, billable work—revenue for the enterprise.

Research data indicates that Windows lacks a comprehensive framework for managing the productive use of computers in professional media production studios. Windows users require greater knowledge of the technical intricacies of their systems, spending more time to get the primary job of authoring and composition done. This translates to greater time spent in file management, data communications, support & training, and other computing activities by Windows users.

In essence, the primary difference between the Windows and Macintosh environments lies in the greater complexity and management overhead required by Windows. In media environments, these differences compound vastly, costing Windows users hundreds of hours each year. In effect, the user has to be an expert in system configuration and know how to predict update problems just to keep up. The primary penalty paid by Windows-based creative professionals remains futzing with non-essentials and not performing authoring work.

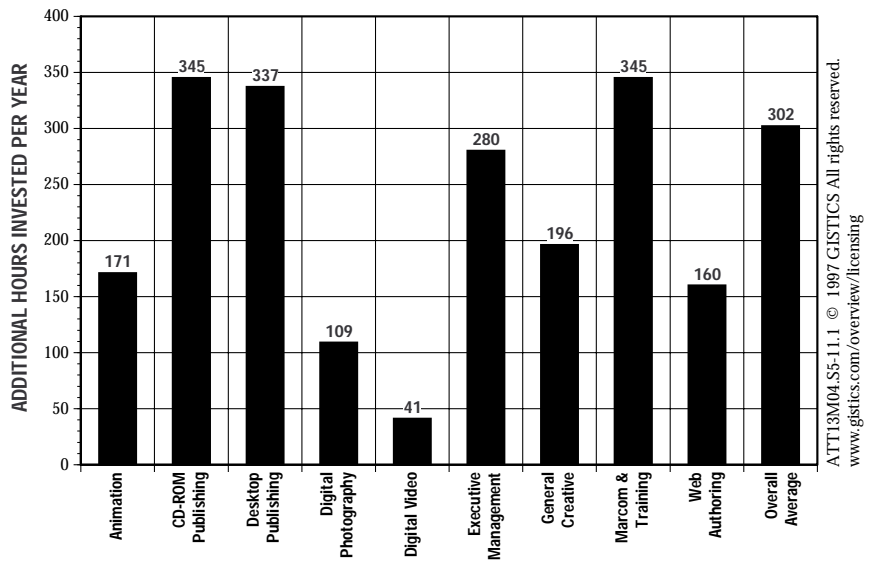
Authoring productivity (greater percentage of time actually spent authoring) translates into higher incremental revenue for the enterprise.

Incremental revenue represents almost 100 percent profit: the enterprise did not have to hire additional people, buy new equipment, invest more in training, or expand its overhead or technical infrastructure. The enterprise delivers and bills more work at little or no additional cost—generating pure profit.

However, for every hour that a creative professional doesn't produce, the business loses even more revenue. How much?

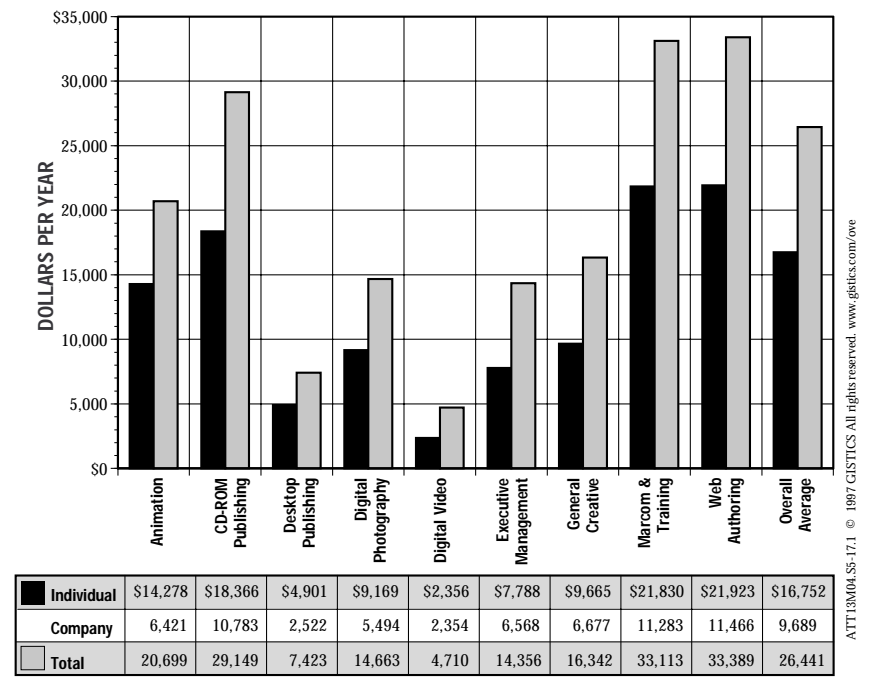
Every hour a creative professional loses to digital administrivia—activities that do not add value in the way that authoring and composition do—the business loses an average of \$92.

HOURS RECOUPED FROM WINDOWS “ADMINISTRIVIA”



Mac-based authors and designers in CD-ROM, Marcom & Training, Desktop Publishing, and Executive Management derive the highest productivity gains over their Windows colleagues. The annual average Mac productivity gain of 302 hours per person relates to greater efficiencies derived from faster hardware, superior foundation technologies (e.g., drag-and-drop, script automation), and better third party tools used in the authoring activity.

MAC DOLLAR SAVINGS FROM LESS “ADMINISTRIVIA”



The Overall Average (industry-wide) indicates that each Mac user recoups \$26,441 in productivity gains. Of this total, \$16,752 represents individual productivity gains, and the remainder relates to work group productivity and company revenue enhancements. Mac authors in Web Authoring and Marcom & Training derived the greatest productivity gains, \$33,389 and \$33,133, respectively.

Conclusion: Time Savings and Productivity Improvement

By using a model that correlates the six major activities performed on a computer, GISTICS finds that the Macintosh advantage generates greater profitability. File management contributed 11.8 percent to the total Mac advantage (100 percent), data communications 6.8 percent, support and training 11.8 percent, other computing activities 11.3 percent, and foundation technologies 21.4 percent. When coupled with the remaining 36.8 percent contribution from authoring software productivity improvements over comparable Windows software, the dollar translation means that Macintosh users end up making \$14,448 more per year net profit than Windows users.

Other improvements allow tighter software and hardware integration, allowing third-party software vendors to do a better job in the Macintosh environment.

When CD-ROM Publishing professionals use a Macintosh, they have an opportunity to redeploy 232 hours to the primary job of creating and billing for high-quality commercial media, versus a Windows user mired in digital administrivia.

These 232 hours translate into \$27,929 of new potential revenue—almost pure profit, with no need to hire additional labor, purchase and maintain additional hardware, pay for additional office space, or consume additional overhead-based resources.

Due to significantly higher rates of revenue production per hour of labor, Executive Managers using Macintoshes can produce \$30,787 in incremental revenue.

A studio with 12 creative professionals and one Executive Producer (who manages individual workers) will produce \$390,000 in incremental income.

Using actual reported savings (see chart at right, **Mac Users' Total Annual Time Savings**), and converting them into increases in authoring time, the figures arrived at, while very conservative, remain significant. An average Macintosh user (both 68000 and Power PC platforms) spends 167 more hours per year of the savings on additional revenue-producing activities. While CD-ROM Publishing and Desktop Publishing lead in actual converted hours, other productivity benefits and billing differences affect the actual revenue more than these operating system differences. Web Authors, Executive Management, and General Creative professionals use the operating system, high labor rates, and workflow integration savings, respectively, to leverage the unique capabilities of the Macintosh.

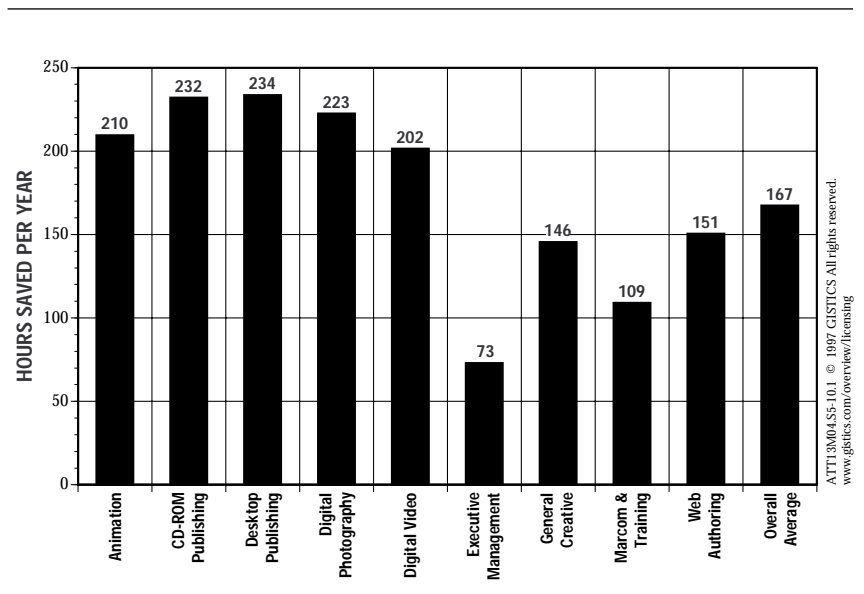
This explains why profit-seeking enterprises have so aggressively invested in technology that delivers higher productivity. This also explains why Macintosh-based creative professionals had one-fourth the employee turnover of Windows-based staff in 1996.*

In terms of who benefits from these savings, GISTICS proposes that both individuals and companies benefit. These savings reflect 10

percent higher labor and corporate billing rates. Based on expense breakdowns for fully burdened labor costs (of 63.1 percent compared to individual savings of 60.4 percent), the majority of benefits pass to creative professionals. They earn more money: Mac users average \$5.01 more per hour, roughly \$4,500 per year, than their Windows counterparts.

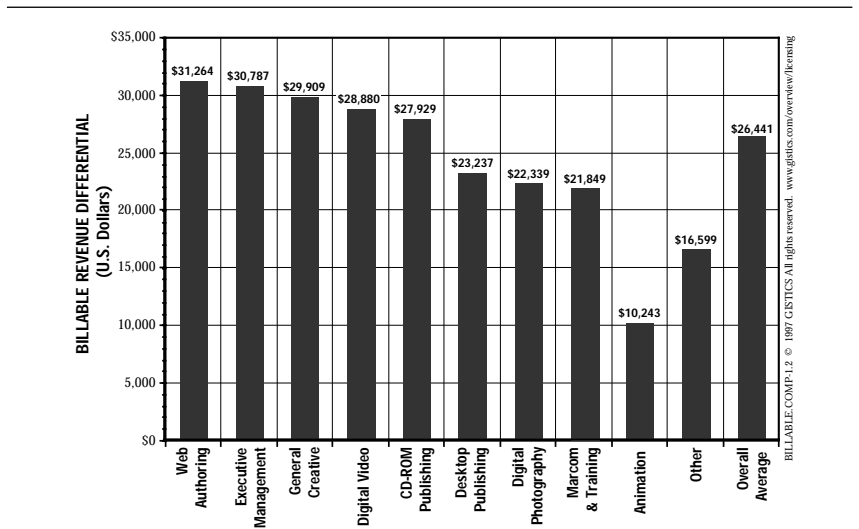
*GISTICS 1996 Annual Interactive Telemedia Assessment

MAC USERS' TOTAL ANNUAL TIME SAVINGS



Mac-based authors and designers in Desktop Publishing (234 hours), CD-ROM (232 hours), Digital Photography (223 hours), Animation (210 hours), and Digital Video (202 hours) derive the highest productivity gains over their Windows colleagues.

REVENUE ADVANTAGE OF THE MACINTOSH



The Overall Average (industry-wide) indicates that Mac users can realize \$26,441 in total revenue gains. The Web Authoring, Executive Management, and General Creative segments would realize the greatest potential revenues—justifying the Macs for continued use in client services, project management, and executive production.

FLAWED COST-OF-OWNERSHIP STUDIES

Most cost-of-ownership studies do not track production environments with fully complemented systems running against hourly time-is-money deadlines. Many of these studies do not track actual expenses, both hard and soft, for an entire three-year span, as well as compile activity-based data from daily and weekly time-accounting systems. More commonly, they compile the first year's data and extrapolate information for the next two years.

As a result, these extrapolated studies do not capture the "futz" factors associated with "getting a job done on time and at budget"—a basic requirement for commercial media producers. They do not capture the extent and impact on profit of rework due to PostScript processing errors, unsupported or corrupted fonts, irregularities in color and sound, et cetera. Nor do these studies accurately capture the extent and duration of support and training "episodes" associated with basic computing operations, adding or swapping hardware peripherals, installation of new software, upgrades, utilities and plug-ins, and formal and informal help provided by co-workers, contractors, associates, vendor Web sites and support centers, and the myriad of books, manuals, newsletters, and magazines that users must read to stay current.

Return-on-Investment Model

GISTICS has collected first year cost-to-acquire data since 1992, as shown in the figure, **First Year Cost-to-Acquire**. While the chart shows some of the increased burdens of using Windows technology, it understates long-term costs. Worse still, the information collected for the chart does not translate the first year support and training costs. As shown in the figure, proper collection of this data reveals the pivotal nature of support and training costs in an assessment of computer platform technologies. If more individuals knew the costs and associated down-time for Windows-based platforms, they would approach the deployment of Windows-based systems with considerably more caution.

Accurate, complete assessment of the return-on-investment for Macintosh and Windows platforms requires three sets of data: *cost-of-ownership*, *net productivity improvement*, and *profit enhancement*.

1) **Cost-of-ownership data** relates all the costs associated with keeping a computer-using creative professional productive for a 36-month period. This data (shown below) reflects monthly records of 1,839 users.

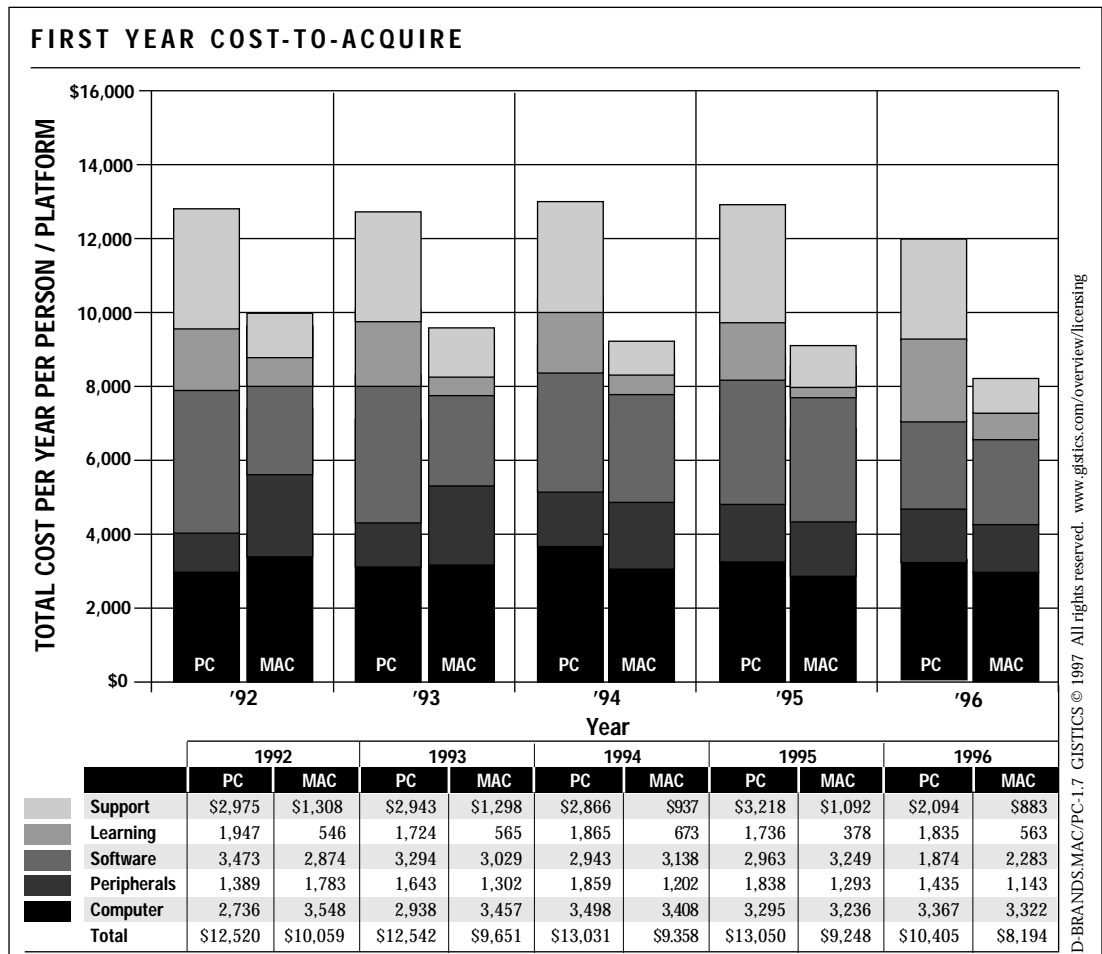
2) **Net productivity improvement data** analyzes how much more time media creators spend in the primary activity of authoring and composition—how they create value as artists or designers. Two components drive productivity improvements: increasing designer skills in using existing technology and improving the technology itself.

3) **Profit enhancement data** correlates how productivity improvements translate into more finished billable work over a year's time.

Profit enhancement also includes the higher business valuations that result from higher-than-industry-average productivity, incremental revenue derived from licensing, and lower direct costs per project (due to the reuse and reexpression of preexisting media assets). Reuse presupposes the ability to reuse preexisting media "as is," with little or no "futz."

Finally, profit enhancement analysis underscores why GISTICS prescribes it as a primary metric for assessing new technology deployment and why management should use it to select one platform architecture over another.

The analysis shows how productivity gains and cost savings create a return-on-investment for the enterprise. It calls attention to why the enterprise deploys anything, technological or otherwise: to increase profits and, by direct extension, shareholder wealth.



COST-OF-OWNERSHIP

To address these and related issues, GISTICS has tracked 400 Macintosh and 400 Windows users in production environments since 1994.

This research supports the industry finding that Macintoshes have a 14.8 percentage cost-of-ownership advantage. However, this figure belies a basic difference between users of Mac and Windows platforms. Mac-based media producers use an average of 14.3 authoring and composition tools; Windows professionals use an average of 8.2. This costs Mac producers \$2,243 more than their Windows counterparts in using an average of six more tools.

This difference, however, distorts the analysis by overstating the cost for Macintosh software, learning, and support. To normalize costs for the higher number of applications used, subtract \$3,937 (software, \$2,532; learning, \$623; support, \$772) to yield the Macintosh Three-Year Total of \$14,943 vs. the adjusted cost total of \$11,016.

This highlights an important total cost-of-ownership factor: each additional program carries with it a support and learning cost,

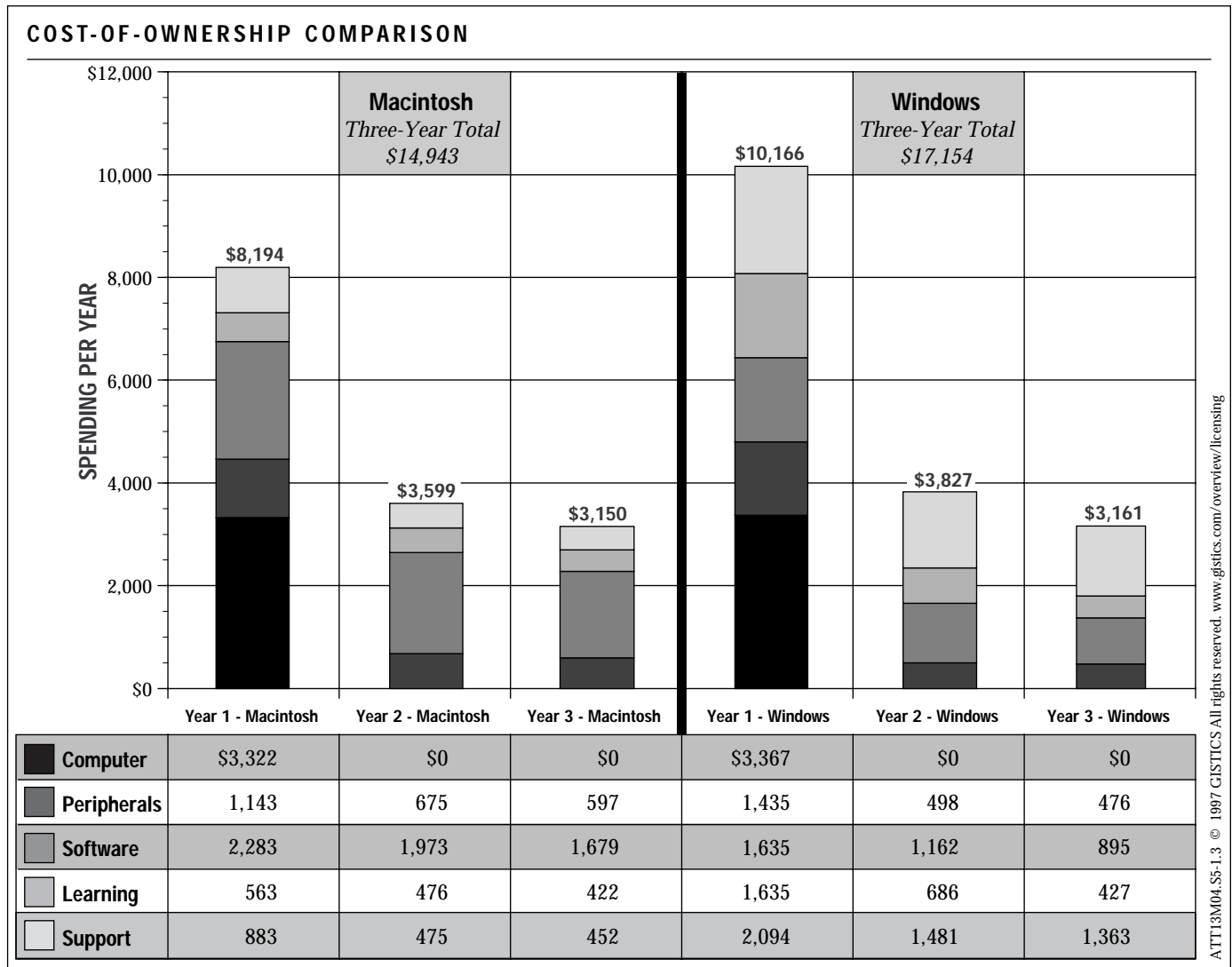
factored on a cost-per-program basis. *Windows users pay three times higher support and learning costs per program.*

Thus, an accurate comparison of the full cost-of-ownership includes the adjustment of the number of programs used. Calculated in this way, *Windows users pay 55.7 percent more for a comparable computing solution—\$17,154 versus the adjusted cost of \$11,016 for Mac users.*

Research Methodology

Our research entailed collecting detailed time-sheets that recorded both billable and non-billable hours, including unpaid or uncompensated learning and problem-solving scenarios.

The bottom-up activity analysis highlights, through a fuller accounting of “futz factors,” that productivity losses with deployment of Windows deepen considerably. These losses remain largely unaccounted for or under-represented in most cost-of-ownership comparisons.



Using its comprehensive three-year cost-of-ownership analysis of Macintosh and Windows users, GISTICS confidently asserts that Macintosh users enjoy significantly lower costs using their systems—\$2,211 less, or 14.1 percent.

The bulk of the difference lies in the first year, with \$1,972 in lower costs for Macintosh. Windows systems cost significantly more in the area of learning and support.

NET PRODUCTIVITY IMPROVEMENTS

One measure of productivity improvement tracks year-to-year gains in the number of additional hours a creative professional can devote to the primary activities of authoring and composition.

These newly created hours will yield three results: more work completed over a given period of time, higher production values in delivered projects, and / or business growth potential without adding staff.

Completing more work over a given period of time enables the studio or business to earn more revenue for each hour of labor. This, in turn, allows the studio to reduce its prices, becoming more competitive, or maintain its prices and earn more profit per project.

Higher production values for finished work mean two things: the artist or designer has the opportunity to more fully realize a creative idea,

and the corresponding work has greater market value—clients will pay a premium price for them. Higher production values not only attract more clients and revenues, they enable the studio to earn more profit. Creative shops known for quality routinely charge their clients more money, as the supply of good “creative” remains scarce and demand for it high. This economic fact lets the studio share its bounty with its creative professionals in the form of higher wages.

Business growth without added staffing cost means that the business can grow without adding staff, harnessing the collectively higher productivity of the work group: they produce more work over the same period of time.

Significantly higher revenues per employee signal that a service business can scale (i.e., grow) with the addition of capital and demand for its product. Thus, productivity improvements enable business owners to earn higher valuations of their business, thereby attracting more capital and corporate partners.

Annual Improvement

GISTICS measures annual improvements in productivity across several market segments. The figure, “Average” User Productivity Improvement, illustrates how ten professional segments benefited over this 12-month period. Total productivity improvements over the previous year saved the North American Media Producer Industry \$50.4 billion in 1996—a 14 percent savings identified in the \$360.1 billion spent in media production.

The General Creative, Animation, and CD-ROM segments realized the largest productivity gains in 1996. GISTICS attributes these to improved file standards, better software, and faster platforms.

The second tier—comprised of Web Authoring, Desktop Publishing, Digital Video, and Digital Photography segments—realized fewer productivity gains. This reflects the lack of effective media asset management and high-speed studio networks—new areas of investment for the studios.

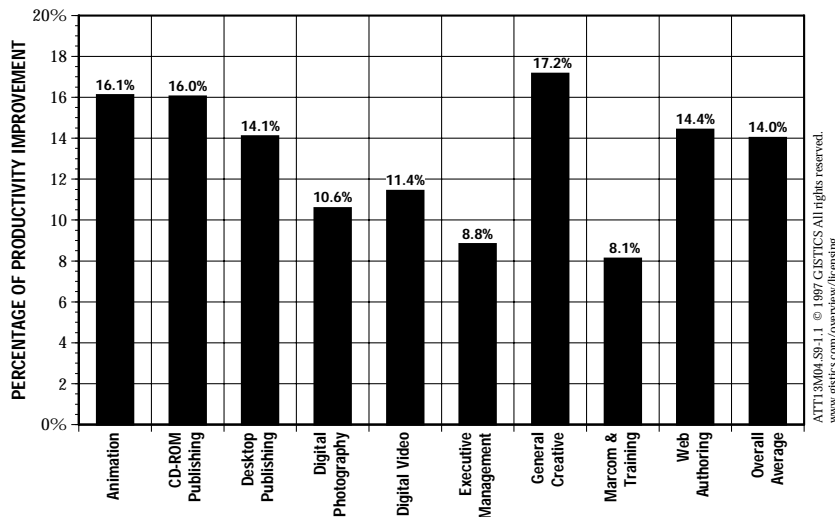
The figure, “Best Practice” User Productivity Improvement, calls attention to the 12-month gains experienced by the top 10 percent in income in each segment. “Best Practice” connotes the top 10 percent of wage earners in each of the 10 segments—a bellwether group for the entire industry.

Overall, the Best Practice Group experienced an 18.1-percent higher annual productivity gain, compared to the 14-percent improvement for the industry average.

Thus, the Best Practice group experienced a 29-percent higher productivity gain than the industry average—the percentage difference between 18.1 and 14 percent.

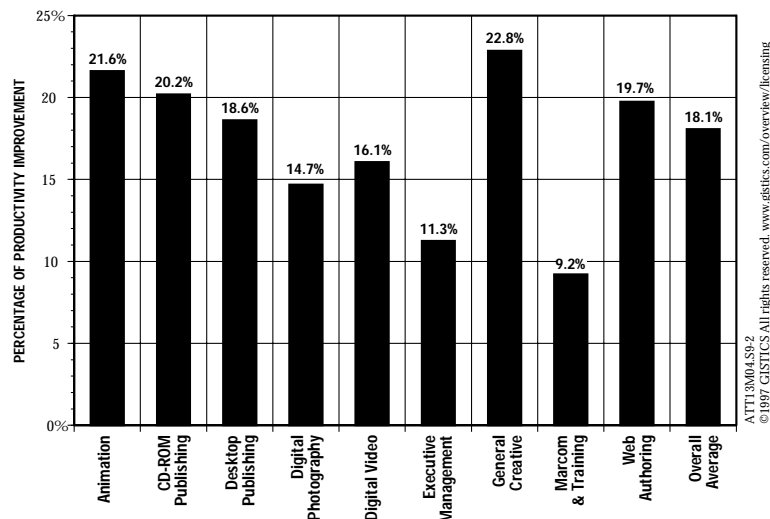
The Best Practice (highest wage earner) group illustrates by their productivity those technologies that most make a difference.

“AVERAGE” USER PRODUCTIVITY IMPROVEMENT: 1995 TO 1996



Productivity improvements reveal that superior integration of technology can, on average, generate twice as much value or return-on-investment.

“BEST PRACTICE” USER PRODUCTIVITY IMPROVEMENT: 1995 TO 1996



Analysis of productivity gains realized by the Best Practice segment in 1995-1996 emphasizes significantly higher gains than the “average” segment in the same period.

PROFIT ENHANCEMENT

Analysis of productivity gains for the years 1995 and 1996 reveals several important patterns.

First, Macintosh users dominate the Best Practice group in eight of the nine areas, illustrating how Mac-based businesses earn more money than their Windows counterparts. The Windows user interface conventions and missing and / or native applications negatively affect media production and studio revenues.

Second, the Best Practice groups for Windows generally lag behind the Macintosh average. This means that the average Macintosh user got higher productivity gains for the year 1995-1996 than the top 10 percent of Windows users in CD-ROM Publishing, Desktop Publishing, and Executive Management.

Third, productivity gains of the Macintosh user continue to grow faster than Windows users. Surprisingly, productivity gains for Windows users appear arrested, and in some segments have actually begun to recede.

This underscores the lower overall reliability of Windows (especially Win 3x and 95), poorer font and PostScript processing (all Windows versions), lack of true plug-and-play (all versions, especially Win 3x / NT), manifold problems associated with connecting / reconnecting to a network, and fewer multi-vendor applications crucial to media production.

The Macintosh Advantage: Higher Net Profit

Greater productivity and higher per hour revenues combine to make the Mac the platform of choice for the creative professional as well as profit-driven media-producer firms.

The net profit advantage of the Macintosh underscores a key factor in the depth and extent of loyalty among its users.

Mac users surveyed by GISTICS report an overall profitability two times greater than Windows users.

While the survey participants report a net profit (before taxes) of 23 percent, Macintosh users report an average of 30 percent profitability. Windows users report 14 percent. Analysis also shows that the Macintosh segment does not convert its productivity into profits in a scale similar to the Windows sector.

We estimate that Mac users reinvest at least six percent of their potential profits in non-economic activities (self-directed learning, experimentation, etc.), lowering their overall net productivity to 14 percent. This calls attention to several key differences between these two sectors.

Significantly, Mac users congregate in higher percentages in independent, profit-driven firms; Windows users concentrate in less rigorously managed (i.e., less accountable to profit) corporate departments.

Bottom-line results, indicated in the chart at right, **Net Profit Per Person by Practice**, show that Mac usage creates more than four times the profit of a comparative Windows environment. GISTICS calculated these figures using derived variables, i.e., projected amounts based on the interaction of several reported figures (simply stated, revenues minus expenses).

Research data and anecdotal commentary also indicate that Mac users "reinvest" a significant portion of their productivity gains in areas other than authoring and composition. Mac users spend more time

learning about new applications programs, investigating next-generation peripherals, and experimenting with enhanced workflow and studio management practices.

As a percentage of all users by platform, Mac users have 3.1 times more early adopters than the Windows sector. Their increased appetite for and pursuit of productivity gains often translate into a significant productivity advantage over Windows users. First to realize productivity gains from new technology, Mac users continue to lead the industry in new productivity gains and profit per user.

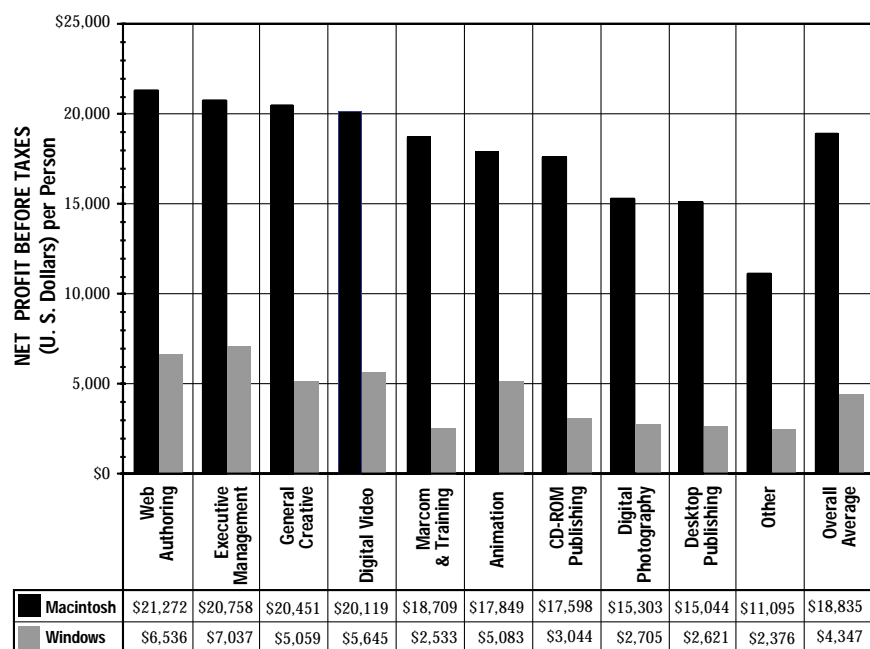
In contrast, Windows users pay high penalties for such experimentation—learning new applications and exploring new system configurations. In such environments, Windows platforms require several hours, if not days, to rectify a system fault caused when installing or de-installing new software or hardware. As a result, Windows users experiment less.

BEST PRACTICE BY PLATFORM

MACINTOSH	63%
WINDOWS	20%
OTHER	17%

What do the most successful, productive, and highly paid (Best Practice) users of a technology know that most of their "common practice" peers do not? They know how to make more money using technology. Members of the Best Practice segment constitute the top ten percent of income earners and demonstrate unique skills, abilities, and technology deployments. They use technology differently; as a result, they spend more time authoring and less time "futzng." They get more work done, delivered, and billed.

NET PROFIT PER PERSON BY PRACTICE



Mac-using professionals produce, on average, \$14,488 more net profit than Windows users.

RETURN-ON-INVESTMENT COMPARISONS

Business owners and professional managers rely on a set of commonly accepted tools to run a business. **Return-on-investment** and **break-even** analysis constitute two important tools.

Return-on-investment (ROI) scenarios for Macintosh and Windows platforms correlate returns (due to productivity enhancements) to the investment required. For example, a two times return-on-investment over three years indicates a return (in the form of higher productivity and lower costs) of two times the original investment over that period.

Months to Break-Even expresses the number of months after purchase that one will have recouped one's initial investment from accrued productivity gains and cost savings. In this context, the fewer number of months it takes to break-even, the better.

Lower investment and higher productivity benefits increase the return-on-investment (ROI)—derived from the number of times one can divide the investment (costs) into the productivity benefit.

A higher ROI figure means that it takes fewer months following the purchase of a new system to recoup the cost of that system—fewer months to “break-even.”

The three-year investment figures shown at right include all costs, including hardware, software, training, and support.

New PowerPC-based Macintosh customers will generate a 7.14 times return-on-investment over a three-year period, achieving break-even in 4.59 months.

NOTE: GISTICS derived the Three-Year Productivity Benefits from an independent survey question on productivity; they do not reflect the savings previously estimated based on productivity differences of various operating systems.

GISTICS computed the initial benefit figure using the 1995-1996 year as a baseline. GISTICS multiplied this by three to arrive at the Three-year Productivity Benefits. The differences in the amounts represent three factors: independently-reported individual productivity (for each category), individual billing rate (by practice), and the average number of professional hours worked per year.

The Bottom Line: Fiduciary Responsibility

Economic data analysis developed from 30,000-plus surveys of creative professionals (a subset of the larger sample of 30,224) underscores the undisputed economic advantage of Macintosh platforms.

Using an overall average, the typical Macintosh user will recoup her/his investment in 5.42 months, generating a 5.50 times return-on-investment over three years.

In sharp contrast, the typical Windows user will recoup her/his investment in 12.26 months, generating a 2.12 times return-on-investment over three years.

From a strictly financial perspective, the break-even and return-on-investment data for Windows renders it an unacceptable solution for the studio. In fact, the prudent financial manager must now consider deployment of Windows platforms a breach of fiduciary responsibility—and a career-altering decision.

R.O.I. ANALYSIS - MACINTOSH

	Three-Year Investment	Three-Year Productivity Benefits	Three-Year ROI	Months to Break-even
Macintosh Averages				
Animation	\$15,417	\$78,759	4.11	7.05
CD-ROM Publishing	12,287	92,270	6.51	4.79
Desktop Publishing	12,531	73,514	4.87	6.14
Digital Photography	10,764	60,648	4.63	6.39
Digital Video	12,953	117,492	8.07	3.97
Executive Management	17,540	107,089	5.11	5.90
General Creative	15,025	110,463	6.35	4.90
Marcom & Training	11,798	54,285	3.60	7.82
Web Authoring	17,059	110,146	5.46	5.58
Average	14,943	97,081	5.50	5.42
PowerPC Breakdown				
Animation	\$17,731	\$108,382	5.11	5.89
CD-ROM Publishing	13,465	128,110	8.51	3.78
Desktop Publishing	14,458	101,018	5.99	5.15
Digital Photography	12,411	81,452	5.56	5.49
Digital Video	14,731	167,183	10.35	3.17
Executive Management	18,829	129,249	5.86	5.24
General Creative	16,640	145,334	7.73	4.12
Marcom & Training	12,428	60,534	3.87	7.39
Web Authoring	19,465	150,020	6.71	4.67
Average	15,904	129,422	7.14	4.59
Macintosh 68000 Breakdown				
Animation	\$12,423	\$40,441	2.26	11.06
CD-ROM Publishing	10,764	45,525	3.23	8.51
Desktop Publishing	10,038	37,938	2.78	9.53
Digital Photography	8,634	33,734	2.91	9.21
Digital Video	10,654	53,214	3.99	7.21
Executive Management	15,873	78,423	3.94	7.29
General Creative	12,937	65,352	4.05	7.13
Marcom & Training	10,983	46,194	3.21	8.56
Web Authoring	13,947	58,567	3.20	8.57
Average	12,095	55,206	3.56	8.09

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DO THINGS GET BETTER WITH NT WORKSTATIONS?

Microsoft NT represents an important advance for the computing industry as a whole, yet a minor one for the professional Media Production Industry.

Economic data analysis underscores the impact of NT's many shortcomings:

- No support for plug-and-play, causing technical support episodes of three hours to three days; longest delays associated with connecting / reconnecting to studio network, adding SCSI interface cards, and scanners.
- Inability to quickly install fonts, and to use across all applications.
- No support for portable computers; lacks power management, on / off switching for PC cards, hot docking of peripherals (requires system reboot).
- Limited availability of device drivers (1,500+ for Windows 95 versus 400+ for NT [as of 6 June 1997, *PC Week*]) needed to operate any peripheral device.

- Lack of several essential applications that run only on Macs or Windows 95.
- Lack of native, NT-optimized applications.
- Arcane, difficult file manager; more like Unix or DEC VMS.
- Slow, problematic print services; introduces PostScript processing errors.
- No upgrade paths from Windows 95; requires lengthy reinstallation process for system registry, reformatting hard disk, etc.—average 2.6 days per system.

While Windows has improved and become more effective in a few niches of the larger Media Producer industry, it lacks the general versatility and integration capabilities to become the foundation of a creative work group. The Mac excels in its overall ability to deal in multiple creative environments successfully.

An "all Mac" firm or studio derives an average 23 percent cost reduction versus one with a mixed platform environment. As explained in fuller detail elsewhere, an "all Windows" studio suffers 21 percent higher overall costs per project, reflecting productivity lost to "futz factors," fewer professional tools, smaller talent pools of top flight creatives, and lower production values in finished works.

Common Platform Benefits

With "all Mac" studios and work groups, productivity averages 12.1 percent more, while mixed environments (Mac and Windows) average productivity as much as 9.3 percent less than the Three-Year Productivity Benefits stated at left for both Macintosh and Windows users.

With "all Windows" environments, studio and work group productivity averages 5.3 percent more than mixed environments, reflecting the integration difficulties between software programs and media standards and formats.

GISTICS believes that Windows NT will continue to evolve but remain a problematic solution. Characteristically, it continues to challenge the leadership that the Macintosh holds. Although Windows NT will build market share in a few niche markets, it does not meet the needs of cross-media authors as a generic media solution. It does not allow for creative synergy in work groups or throughout enterprises involved in the creation of digital media. This situation will not likely change in the remainder of this decade.

R.O.I. ANALYSIS - WINDOWS

	Three-Year Investment	Three-Year Productivity Benefits	Three-Year ROI	Months to Break-even
Windows Averages				
Animation	\$17,672	\$74,416	3.21	8.55
CD-ROM Publishing	17,806	43,848	1.46	14.62
Desktop Publishing	15,564	30,112	0.93	18.61
Digital Photography	16,548	43,962	1.66	13.55
Digital Video	18,104	57,514	2.18	11.33
Executive Management	17,216	47,067	1.73	13.17
General Creative	17,190	68,656	2.99	9.01
Marcom & Training	16,020	53,978	2.37	10.68
Web Authoring	20,916	58,129	1.78	12.95
Average	17,154	53,616	2.12	12.26
Windows NT Breakdown				
Animation	\$25,167	\$127,442	4.06	7.11
CD-ROM Publishing	22,822	54,142	1.37	15.17
Desktop Publishing	17,810	38,021	1.13	16.86
Digital Photography	19,160	46,168	1.41	14.94
Digital Video	23,082	65,803	1.85	12.63
Executive Management	18,750	51,501	1.75	13.11
General Creative	23,621	83,561	2.54	10.18
Marcom & Training	18,195	62,674	2.44	10.45
Web Authoring	28,609	71,729	1.51	14.36
Average	21,321	64,338	2.02	11.58
Windows 95 Breakdown				
Animation	\$14,273	\$50,438	2.53	10.19
CD-ROM Publishing	15,532	38,525	1.48	14.51
Desktop Publishing	14,546	26,544	0.82	19.73
Digital Photography	15,364	43,989	1.86	12.57
Digital Video	15,847	42,214	1.66	13.51
Executive Management	16,520	36,296	1.20	16.39
General Creative	14,273	60,356	3.23	8.51
Marcom & Training	15,034	50,981	2.39	10.62
Web Authoring	17,427	52,095	1.99	12.04
Average	15,275	45,460	1.98	13.06

PROGRAM PROFICIENCY

A direct relationship exists between the number of programs with which a creative professional becomes proficient and the yield in high quality media produced.

Macintosh professionals generally use an average of six more tools than their Windows counterparts, leading to higher quality work, faster cycle time, and more profit.

If creative professionals have the need to constantly push for new creative expressions, and find the learning process easy, most will invest themselves in new programs. Mac users generally learn new software programs easily, highlighting the tight compliance of software developers with the Macintosh Human Interface Model. Windows platforms exact numerous penalties from media producers learning new software programs. These downsides include incomplete platform integration, weak underlying foundation technologies, and an overall instability as a networked plug-and-play client in media-producing studios.

Installation of a new program in Windows will often disrupt those already installed. "De-installation" of the offending program often requires hours of tedious and complex diagnostics, and the rewriting of software drivers.

The lack of true plug-and-play in Windows 95/97 (and its complete absence in Windows NT) further discourages "work-an-hour, get-paid-an-hour, time-is-money" users from learning or experimenting with new programs and add-on peripherals. The revenue lost due to down time often exceeds the peripheral purchase price; in some cases, down time costs can exceed the purchase price of a new tool by as much as five times.

Future Trends

The increasing number of programs that creative professionals need to learn and use at full proficiency—up from four programs per year

in 1992 to eight programs today—means that a crisis point looms as they attempt to integrate all those programs within a workflow process.

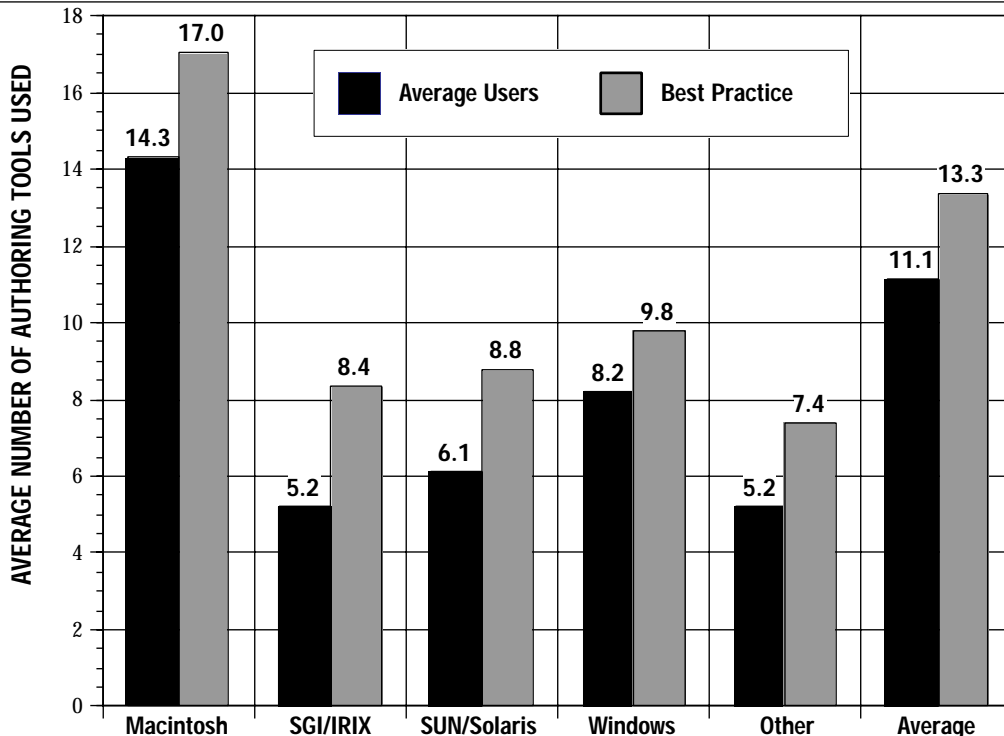
By 1998, the creative professional will need to master 12 to 14 tools. Streamlined file conversion and faster, error-free file transfer will butt up against the human and technical limitations of multiple-use studio facility. The proliferation of new tools (i.e., new file types), the need to revise preexisting media, and the need to extend the lifecycle of those media assets stress the importance of adopting industry standards, open platforms, and plug-and-play networking. Studios will continue to become more complex; failure to devise "solutions" that scale, span platform discontinuities, and provide the best tools for creativity will severely hurt the studio.

Another trend indicates creative professionals will continue to adopt new roles as generalists in new technologies. This requires that users have more experience and proficiency with more tools. General Creatives now add Web savvy to their portfolio of skills; Marcom experts now become knowledgeable in training and presentation; Desktop Publishers begin to understand the need for Internet color and a customer registration process. The emergence of the "Renaissance Creative" will bear fruit for those professionals who work in platforms that provide effortless, agile cross-program operation.

That Macintosh creative professionals use almost twice as many tools reflects their greater ease of cross-program operation, and means that they will more likely succeed in pushing the envelope of creative expression.

For this reason, Macintosh users typically produce work with greater finesse, production value, and quality. A thorough examination of industry awards for creativity, design excellence, and communications effectiveness reveals that most award winners use Macs.

PROGRAM PROFICIENCY ACROSS PLATFORMS



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As a consequence of Mac users gaining greater proficiency in a greater numbers of authoring tools, they have pushed the professional community

into a more interdisciplinary approach. Mac users have emerged as integrators and generalists in dynamic cross-media authoring.

PLATFORM LIFECYCLE

Many businesses could justify upgrading even faster in light of ROI data; they would achieve full payback in four to six months.

The Best Practice group in the **Animation** segment upgrades their primary platform every 27.1 months, compared to 48.2 months for the industry average user—a difference of 21.1 months, or 56 percent faster.

The Best Practice group in **CD-ROM Publishing** upgrades their primary platform every 27.3 months, compared to 37.8 months for the industry average user—a difference of 10.5 months, or 72 percent faster.

The Best Practice group in **Desktop Publishing** upgrades their primary platform every 19.7 months, compared to 32.5 months for the industry average user—a difference of 12.8 months, or 61 percent faster.

The Best Practice group in **Digital Photography** upgrades their primary platform every 33 months, compared to 51.3 months for the industry average user—a difference of 18.3 months, or 64 percent faster.

The Best Practice group in **Digital Video** upgrades their primary platform every 28.2 months, compared to 45.5 months for the industry average user—a difference of 17.3 months, or 62 percent faster.

The Best Practice group in **Executive Management** upgrades their primary platform every 32.2 months, compared to 50.2 months for

the industry average user—a difference of 18 months, or 64 percent faster.

The Best Practice group in **General Creative** upgrades their primary platform every 19.9 months, compared to 39.6 months for the industry average user—a difference of 19.7 months, or 50 percent faster.

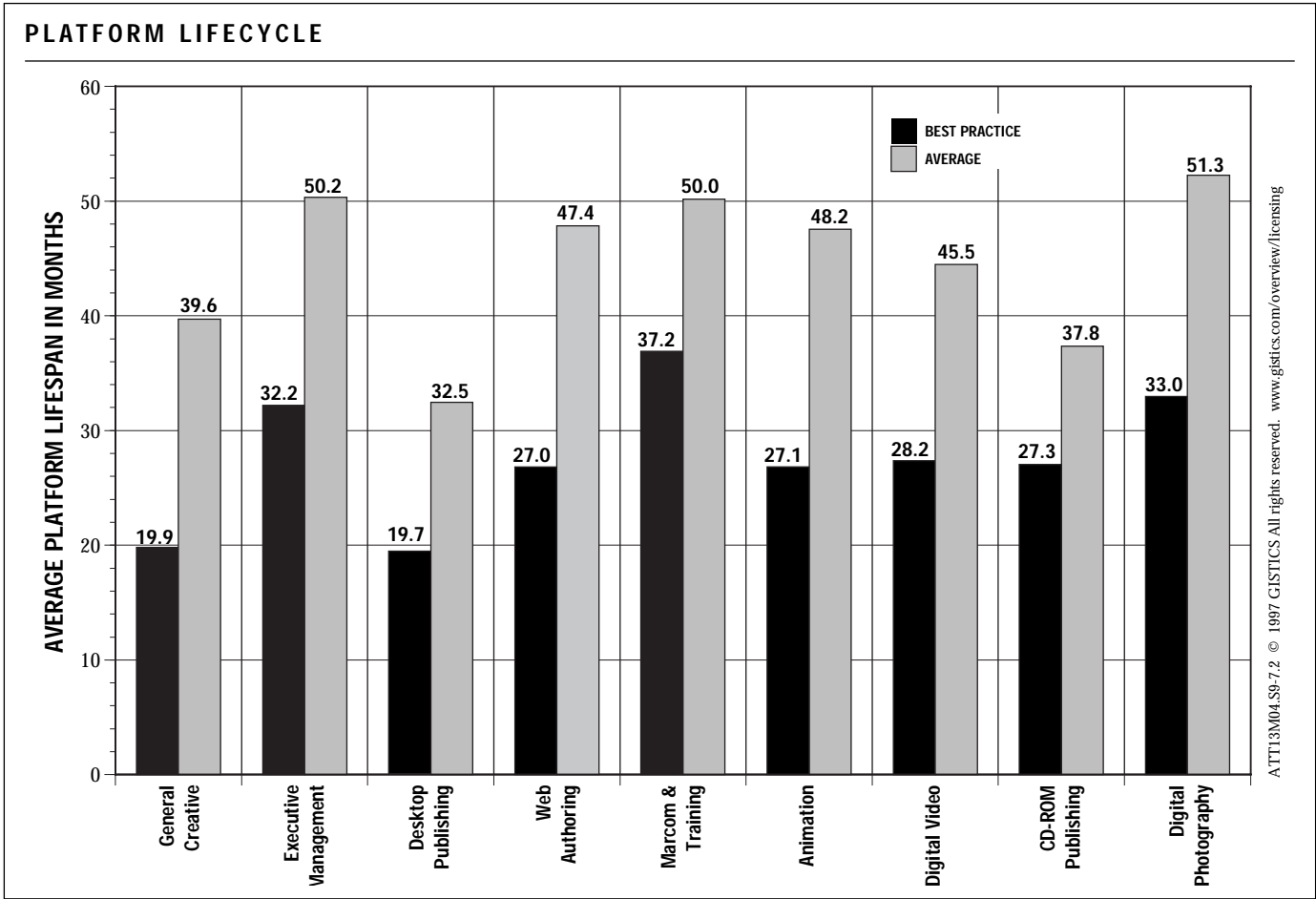
The Best Practice group in **Marcom & Training** upgrades their primary platform every 37.2 months, compared to 50 months for the industry average user—a difference of 12.8 months, or 74 percent faster.

The Best Practice group in **Web Authoring** upgrades their primary platform every 27 months, compared to 47.4 months for the industry average user—a difference of 20.4 months, or 57 percent faster.

Upgrade Strategy

Many professional media creators should consider upgrading their primary system every 18 months to realize the productivity savings that the added “horsepower” yields. To wait longer would risk losing potential income—due to unrealized productivity gains.

An even more aggressive upgrade strategy (every 9 to 12 months) may make sense if a user spends more than 50 percent of her / his time in *intensive* authoring, composition, or manipulation of digital media.



The profitability of the Best Practice group clearly illustrates the value of shorter upgrade cycles. This data supports the recommendation to upgrade a studio's “A team”—the best designers, authors, or artists—every 18 months. Management should then cycle these old systems through the rest of the

studio for another 9 to 12 months. Moreover, studio managers should cycle-out all systems older than 36 months, or use them for dedicated, operator-less functions, such as fax processing, e-mail, script-driven batch processors of low-level imaging, back-up, and archiving.

PRODUCTIVITY BENCHMARKS

GISTICS benchmarks illustrate how to assess relative differences in platform deployment, calling attention to those factors that directly contribute to user productivity. To build a comprehensive model, GISTICS analyzed the activities of 2,005 Best Practice professionals since 1995. Their collective insights enabled GISTICS to generate an **Optimized Performance Model**, a set of 24 benchmarks, shown in the figure below, **Best Practice Productivity Benchmarks**.

Each of these 24 benchmarks serves as an independent variable, establishing the uppermost bounds of productivity realized by the top one percent (the top 10 percent of the Best Practice group).

As illustrated in the figure, **Technology Breakdown**, 60.04 percent of **Application software** contributes to user productivity. **Hardware and Operating Systems** contribute the remaining 39.96 percent.

This means that hardware and operating systems play an important but not dominant role in user productivity. Speed, stability, and high integration levels that support application software define the primary benefits of hardware.

With respect to organizational productivity gains, the figure, **Productivity Classification**, shows that **Individual Productivity** represents 58.34 percent of total productivity, and **Work Group Productivity** the remaining 41.66 percent. This means that individual productivity arises from personal initiatives—new practices derived from self-

directed learning. Infrastructure and collaboration practices support work-group productivity. Productivity also relates to the type of creative professional, e.g. Animation.

GISTICS employs an activity model comprised of six categories (see figure, **Activity Breakdown**):

Primary Authoring Tools relate to the principal activity of creating media, contributing 46.35 percent of total productivity.

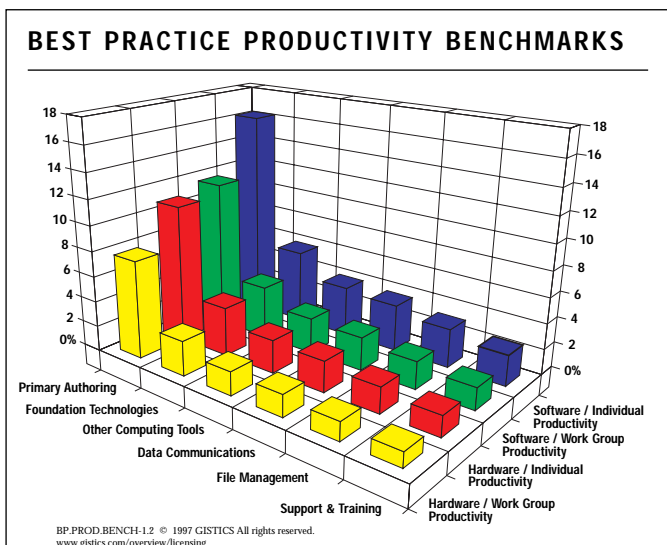
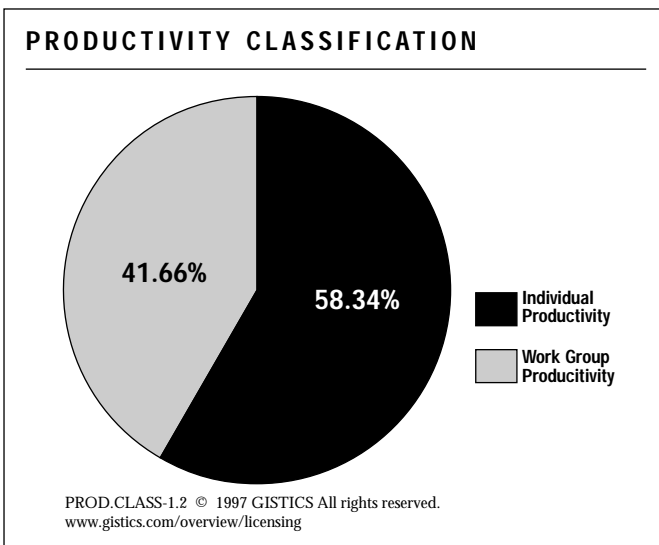
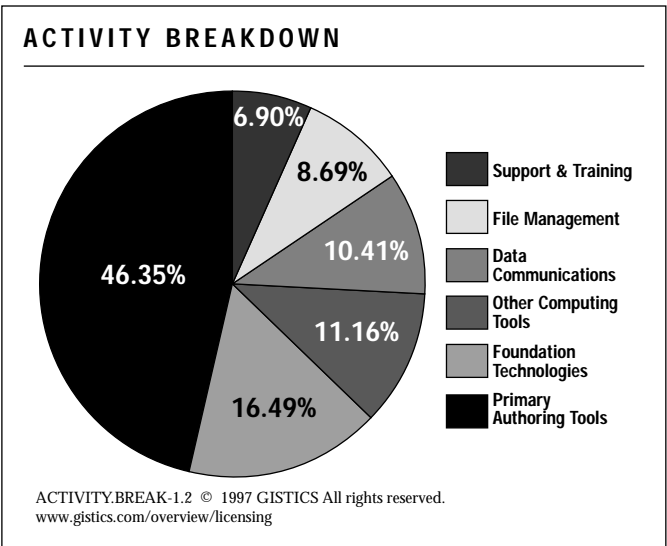
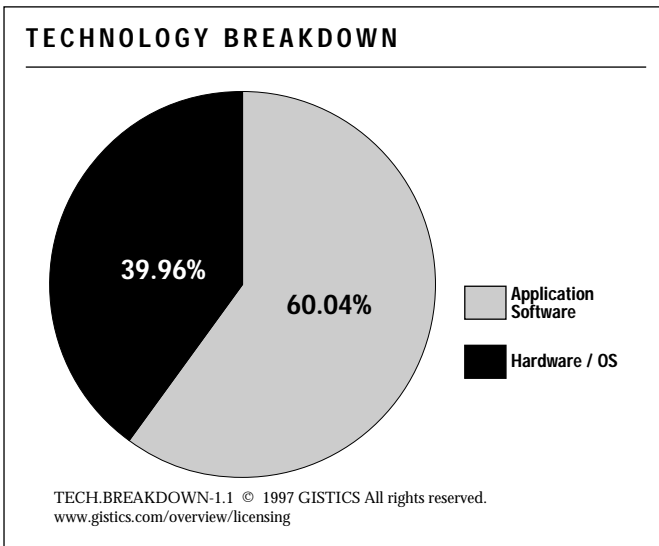
Foundation Technologies (e.g., QuickTime, ColorSync, AppleScript, AppleEvents™, Drag-and-Drop) contribute 16.49 percent of total productivity—technologies that reduce repetitive tasks and numerous “work-arounds” as well as enable an author to realize a creative idea not otherwise feasible (due to how much time it would take) or possible (due to a crucial technical function).

Other Computing Tools (e.g., word processing, spreadsheets, time accounting software) contribute 11.16 percent of total productivity.

Data Communications (e.g., electronic mail, file transfer, Web surfing, faxes) contribute 10.48 percent.

File Management (e.g., file identification, file-naming convention set-up, file folder reorganization) contributes 8.69 percent.

Support & Training (learning how to use programs more effectively, learning new programs, finding ways to interrelate programs) contribute 6.91 percent of total productivity.



SOURCES OF PRODUCTIVITY

Another way of examining productivity requires that we examine purchasing trends. Using this approach, figures in 1996 revealed increasing sales of peripherals and servers purchased to better distribute studio workload, to reduce re-works and color calibration issues, and to improve the resolution of graphics. Consequently, market demand remained high for color printers, high-resolution monitors, scanners, and servers for printing. Animation, digital video, and photography areas made the greatest improvements.

In 1997 the same trends continue, emphasizing greater sophistication as communications, workflow, and asset-management technologies establish new levels of productivity for businesses. This means that the reexpression of media into multiple formats will require tightly integrated teams or cross-disciplinary professionals—a trend already adopted in the Best Practice group.

In 1998, GISTICS anticipates full-scale deployment of media asset management and the commercialization of the Web. This will require more mature Web and electronic commerce tools with scalable object database technologies and high-speed studio networks

Productivity Benchmarks

Using the productivity allocations illustrated in the three pie charts on the previous page, the figure, **Best Practice Productivity Benchmarks**, correlates each variable of these pie charts (as 24 sources and levels of productivity) to a single quantitative model.

This model answers the question, "How much of the total potential productivity (as realized by the Best Practice group) does any one variable contribute?" For example, the model correlates Application Software to five independent variables—sources of productivity—listed in descending order of contribution:

- Primary Authoring Tools
- Foundation Technologies
- Other Computing Tools
- Data Communications
- File Management

This benchmark also suggests a way for studio executives to compare how much productivity they have not yet realized, clarifying strategic investments that will shore up their lagging productivity.

To capture the full value of studio personnel and their creativity, studio executives will need a systematic technology-deployment plan—a result of a fact-based assessments of studio productivity and how it ranks against these 24 Best Practice productivity benchmarks.

For those interested in commissioning such an assessment, or licensing the data collection instruments to conduct such an assessment, please contact GISTICS at research@gistics.com or 415.924.3703.

GISTICS Productivity Index

A rigorous correlation of 24 Best Practice Benchmarks to six Best Practice groups within the Media Producer Industry underlies the **GISTICS Media Producer Productivity Index**.

Each benchmark of the six represents the highest each group scored; a perfect score of 100 would indicate the full realization of all 24 benchmarks.

Full realization of a given benchmark relies on the utilization of up to seven subordinate technologies, techniques, or approaches—the "guts" of each benchmark.

Failure to utilize one or two of these subordinate items can significantly reduce one's individual scoring against the benchmark (e.g., non-adoption of ColorSync or comparable ICC color-calibration systems will lower one's score in the software / work group category of foundation technology).

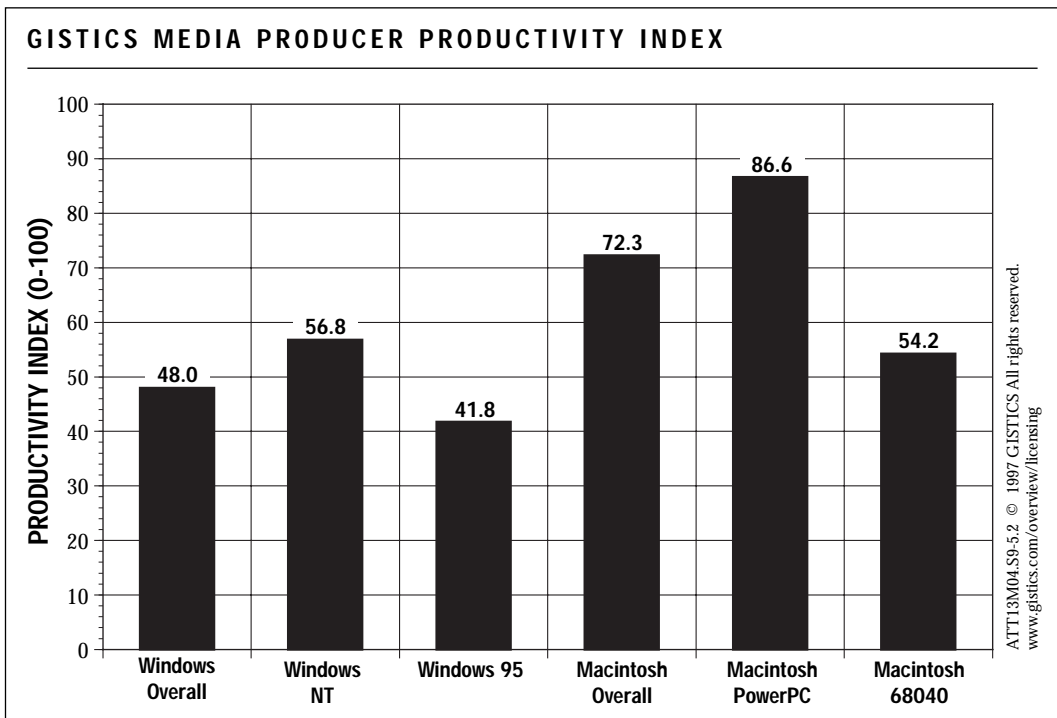
The GISTICS Productivity Index highlights a fundamental premise of computer productivity: weak or missing links of a complete solution significantly undermine productivity. The principal economic advantage of the Macintosh become clear: its higher degree of "completeness" pays productivity dividends many times over.

Out of a possible score of 100, the Macintosh Best Practice group attained an index ratio of 72.3; those using PowerPC platforms scored 86.6. In sharp contrast, the Windows Best Practice group scored 48.0; those using Windows NT scored 56.8.

What This Means

Full utilization of the human capital and creativity of media-producing professionals rests upon a complex, dynamic system—an ecology—of the modern digital studio using practices that enhance creativity and boost productivity.

The Productivity Index clearly highlights the often hidden penalties of using a platform not optimized for processing media-rich data.



This chart illustrates how various groups stack up against the peak attainable level of productivity realized by the top one percent in each industry group. The theoretical limit of 100 constitutes a perfect score in all 24 Best Practice productivity benchmarks; each represents three to 10 activities that improve productivity (e.g., catalog and reuse pre-existing media). Given this framework, Best Practice groups of PowerPC-based Mac users realized 86.6 percent of attainable productivity. The Best Practice group of Windows NT users realized only 56.8 percent of the total attainable.

CALCULATING PLATFORM R.O.I. SCENARIOS

This section shows you how to calculate the return-on-investment for a variety of platform deployments. For each of the scenarios displayed, follow these steps:

Step one: Place the number of creative professionals employed by your firm in Table I, GROSS BENEFITS*, multiplying each figure by its corresponding dollar amount in *Total Three-Year Total Benefits by Individual Role*. This will populate the column, *Totals by Role*.

Step two: Total the dollar figures in the column, *Totals by Role*. The sum represents your firm's *Total Three-Year Gross Benefits* for the designated platform.

Step three: Place the figure, *Total Three-Year Gross Benefits*, in its corresponding area in Table III, CALCULATION TABLE.

Step four: In Table II, TOTAL COSTS, place the number of creative professionals employed by your firm on the appropriate line(s), multiplying each figure by its corresponding dollar amount in *Three-Year Total Costs by Individual Role*. This will populate the column, *Totals by Role*.

Step five: Total the dollar figures in the column, *Totals by Role*. The sum represents your firm's *Total Three-Year Gross Benefits* for the designated platform.

Step six: Place the figure, *Total Three-Year Total Costs*, in its corresponding area in Table III, CALCULATION TABLE.

Step seven: In Table III, subtract the figure for *Total Three-Year Costs* from the figure, *Total Three-Year Gross Benefits*. This will yield, *Total Three-Year Net Benefit*.

Step eight: Also in Table III, place the *Total Three-Year Costs* in the area marked by the division symbol, and divide that figure into figure for *Total Three-Year Net Benefit*. This will yield the number of times return-on-investment for the featured platform decision, e.g., buying a Macintosh, upgrading from Windows 95 to Windows NT.

*Note: *Gross Benefits* represent productivity gains and cost savings tallied over three year period.

JUSTIFYING YOUR WINDOWS INVESTMENT

I. GROSS BENEFITS

	Three-Year Total Costs by Individual Role	Number of Creatives	Totals by Role
Animation	\$74,416	X	_____ = _____
CD-ROM Publishing	\$43,848	X	_____ = _____
Desktop Publishing	\$30,112	X	_____ = _____
Digital Photography	\$43,962	X	_____ = _____
Digital Video	\$57,514	X	_____ = _____
Executive Management	\$47,067	X	_____ = _____
General Creative	\$68,658	X	_____ = _____
Marcom & Training	\$53,978	X	_____ = _____
Web Authoring	\$58,129	X	_____ = _____

Total Three-Year Gross Benefit \$ _____

II. TOTAL COSTS

	Three-Year Total Costs by Individual Role	Number of Creatives	Totals by Role
Animation	\$17,672	X	_____ = _____
CD-ROM Publishing	\$17,806	X	_____ = _____
Desktop Publishing	\$15,564	X	_____ = _____
Digital Photography	\$16,548	X	_____ = _____
Digital Video	\$18,104	X	_____ = _____
Executive Management	\$17,216	X	_____ = _____
General Creative	\$17,190	X	_____ = _____
Marcom & Training	\$16,020	X	_____ = _____
Web Authoring	\$20,916	X	_____ = _____

Total Three-Year Costs \$ _____

III. CALCULATION TABLE

Total Three-Year Gross Benefits	\$ _____
Total Three-Year Costs	- \$ _____
Total Three-Year Benefit	\$ _____
Total Three-Year Costs	÷ \$ _____
Times Return-on-Investment	_____

JUSTIFYING YOUR MACINTOSH INVESTMENT

I. GROSS BENEFITS

	Three-Year Total Costs by Individual Role	Number of Creatives	Totals by Role
Animation	\$78,759	X	_____ = _____
CD-ROM Publishing	\$92,270	X	_____ = _____
Desktop Publishing	\$73,514	X	_____ = _____
Digital Photography	\$60,648	X	_____ = _____
Digital Video	\$117,492	X	_____ = _____
Executive Management	\$107,089	X	_____ = _____
General Creative	\$110,463	X	_____ = _____
Marcom & Training	\$54,285	X	_____ = _____
Web Authoring	\$110,146	X	_____ = _____

Total Three-Year Gross Benefit \$ _____

II. TOTAL COSTS

	Three-Year Total Costs by Individual Role	Number of Creatives	Totals by Role
Animation	\$15,417	X	_____ = _____
CD-ROM Publishing	\$12,287	X	_____ = _____
Desktop Publishing	\$12,531	X	_____ = _____
Digital Photography	\$10,764	X	_____ = _____
Digital Video	\$12,953	X	_____ = _____
Executive Management	\$17,540	X	_____ = _____
General Creative	\$15,025	X	_____ = _____
Marcom & Training	\$11,798	X	_____ = _____
Web Authoring	\$17,059	X	_____ = _____

Total Three-Year Costs \$ _____

III. CALCULATION TABLE

Total Three-Year Gross Benefits	\$ _____
Total Three-Year Costs	- \$ _____
Total Three-Year Benefit	\$ _____
Total Three-Year Costs	÷ \$ _____
Times Return-on-Investment	_____

CALCULATING UPGRADE R.O.I. SCENARIOS

This section shows you how to calculate the return-on-investment when upgrading from Windows 95 and Macintosh 68000 to Windows NT and a PowerPC, respectively. For both of the scenarios, follow these steps:

Step one: To calculate the benefit of upgrading, in Section I, simply enter the number of creatives (professional) employed by your firm in the appropriate category(s), and multiply each number by its corresponding dollar amount in the *Net Benefits* column. These calculations will populate the column *Totals By Role*.

Step two: Total the dollar figures in the column, *Totals by Role*. The sum represents your firm's *Total Three-Year Gross Benefit* for the designated upgrade.

Step three: Place the figure, *Total Three-Year Gross Benefit*, in its corresponding area in Section III, CALCULATION TABLE.

Step four: In Section II, TOTAL COSTS, place the number of creative professionals employed by your firm on the appropriate area(s). Multiply each figure by its corresponding amount in *Three-Year Total Costs by Individual Role*. This will populate the column, *Totals by Role*.

Step five: Total the dollar figures in the column, *Totals by Role*. The sum represents your firm's *Three-Year Costs* for the designated upgrade.

Step six: Calculate the cash salvage value of the equipment you wish to upgrade in the resale market for used equipment, and enter the value in the *Minus Salvage Costs on Original Equipment* position (usually around 10 percent of original purchase price).

Step seven: Subtract *Salvage Costs on Original Equipment* from *Three-Year Costs* to yield *Total Three-Year Costs*.

Step eight: Place the figure, *Total Three-Year Costs* in its corresponding area in Section III, CALCULATION TABLE.

Step nine: In Section III, subtract the figure for *Total Three-Year Costs* from the figure, *Total Three-Year Gross Benefits*. This will yield the *Total Three-Year Net Benefit*.

Step ten: Also in Section III, place the *Total Three-Year Costs* in the area marked with a divisor (÷), and divide that figure into the *Total Three-Year Net Benefit*. This will yield the number of times return-on-investment for the featured platform upgrade.

UPGRADING FROM WINDOWS 95 TO NT					
I. GROSS BENEFITS					
	WIN NT Benefits	WIN 95 Benefits	Net Benefits	Number of Creatives	Totals by Role
Animation	\$127,442	- \$50,438	= \$77,004	X _____	= _____
CD-ROM Publishing	\$54,142	- \$38,525	= \$15,618	X _____	= _____
Desktop Publishing	\$38,021	- \$26,544	= \$11,476	X _____	= _____
Digital Photography	\$46,168	- \$43,989	= \$2,179	X _____	= _____
Digital Video	\$65,803	- \$42,214	= \$23,590	X _____	= _____
Executive Management	\$51,501	- \$36,296	= \$15,205	X _____	= _____
General Creative	\$83,561	- \$60,356	= \$23,205	X _____	= _____
Marcom & Training	\$62,674	- \$50,981	= \$11,693	X _____	= _____
Web Authoring	\$71,729	- \$52,095	= \$19,635	X _____	= _____
Total Three-Year Gross Benefit					\$ _____
II. TOTAL COSTS					
	Three-Year Total Costs by Individual Role		Number of Creatives	Totals by Role	
Animation	.....\$25,167		X _____	= _____
CD-ROM Publishing	.....\$22,822		X _____	= _____
Desktop Publishing	.....\$17,810		X _____	= _____
Digital Photography	.....\$19,160		X _____	= _____
Digital Video	.....\$23,082		X _____	= _____
Executive Management	.....\$18,750		X _____	= _____
General Creative	.....\$23,621		X _____	= _____
Marcom & Training	.....\$18,195		X _____	= _____
Web Authoring	.....\$28,609		X _____	= _____
Three-Year Costs				\$ _____	
Minus Salvage Costs on Original Equipment			-	\$ _____	
Total Three-Year Costs				\$ _____	
Three-Year Transfer Costs				\$ _____	
III. CALCULATION TABLE					
Total Three-Year Gross Benefits				\$ _____	
Total Three-Year Costs				- \$ _____	
Total Three-Year Net Benefit				\$ _____	
Total Three-Year Costs				÷ \$ _____	
Times Return-on-Investment				_____	

UPGRADING FROM MAC 68000 TO POWER PC					
I. GROSS BENEFITS					
	PowerPC Benefits	68000 Benefits	Net Benefits	Number of Creatives	Totals by Role
Animation	\$108,382	- \$40,441	= \$67,941	X _____	= _____
CD-ROM Publishing	\$128,110	- \$45,525	= \$82,586	X _____	= _____
Desktop Publishing	\$101,018	- \$37,938	= \$63,080	X _____	= _____
Digital Photography	\$81,452	- \$33,734	= \$47,718	X _____	= _____
Digital Video	\$167,183	- \$53,214	= \$113,970	X _____	= _____
Executive Management	\$129,249	- \$78,423	= \$50,825	X _____	= _____
General Creative	\$145,334	- \$65,352	= \$79,982	X _____	= _____
Marcom & Training	\$60,534	- \$46,194	= \$14,340	X _____	= _____
Web Authoring	\$150,020	- \$58,567	= \$91,454	X _____	= _____
Total Three-Year Gross Benefit					\$ _____
II. TOTAL COSTS					
	Three-Year Total Costs by Individual Role		Number of Creatives	Totals by Role	
Animation	.....\$17,731		X _____	= _____
CD-ROM Publishing	.....\$13,465		X _____	= _____
Desktop Publishing	.....\$14,458		X _____	= _____
Digital Photography	.....\$12,411		X _____	= _____
Digital Video	.....\$14,731		X _____	= _____
Executive Management	.....\$18,829		X _____	= _____
General Creative	.....\$16,640		X _____	= _____
Marcom & Training	.....\$12,428		X _____	= _____
Web Authoring	.....\$19,465		X _____	= _____
Three-Year Costs				\$ _____	
Minus Salvage Costs on Original Equipment			-	\$ _____	
Total Three-Year Costs				\$ _____	
Three-Year Transfer Costs				\$ _____	
III. CALCULATION TABLE					
Total Three-Year Gross Benefits				\$ _____	
Total Three-Year Costs				- \$ _____	
Total Three-Year Net Benefit				\$ _____	
Total Three-Year Costs				÷ \$ _____	
Times Return-on-Investment				_____	

CONSIDERATIONS FOR CHANGING SYSTEM TECHNOLOGY

Productivity reflects a worker's understanding of the job to perform and how best to execute it—application of knowledge to work.

As studio managers consider conversion to a new computing platform, they must take into account their willingness and ability to retrain their media-producing professionals. Numerous significant differences exist between the Mac and Windows worlds (the latter comprising Windows 95, Window NT, and Windows 95 / NT / Internet Explorer 4.0—the latest “de facto” standard user interface from Microsoft). These differences not only affect the behavior of individual programs, they have a significant impact on the nature and feel of studio workflow and worker morale.

It becomes critical that managers assess this impact before committing to a conversion.

Research data indicates that it takes 9 to 18 months of steady use and supplemental training to master a complex media-producing software tool.

While many tools exist for both Mac and Wintel systems, skills do not immediately transfer—myriad differences and nuances take months to learn and “map” into reflexive behavior. Rote training and keyboard calisthenics help tremendously; however, most craft professionals find this approach stupid.

Generally, the conversion of Mac to Wintel platforms remains a painful, distasteful process for the creative team. In fact, more than half will quit if forced to convert from Mac. This creates additional costs for recruitment (in a significantly smaller talent pool), training (both remedial and proactive—related to relearning basic O.S. functions, an existing tool, and / or learning a new tool), and asset conversion.

Asset conversion remains one of the most expensive and hidden costs of platform conversions. Files created, used, reused, and reexpressed on Macs do not automatically work in a Wintel environment: fonts, colors, formatting, and pagination change, rendering the media asset useless without hours of reconstructive work.

For corporations and studios that create and manage “brands” (and the media assets that help create them), the costs of a Mac-to-Wintel asset conversion will exceed all potential productivity and support cost savings that might accrue. The daunting task to reconstruct years or decades of work (otherwise reusable in a Mac environment) forces the studio to “reboot” the entire production system—a waste of several thousands to millions of dollars. Reconstruction of one file averages 1.1 hours at a fully burdened labor rate of \$55.50 (\$61.00 total).

GISTICS research of media-producing studios suggests that roughly 2,985 digital files and 836 to 1,045 reusable media assets exist for each media producer. A studio of 10 producers will possess approximately 10,000 reusable or reexpressible files; a studio of 100 will have 300,000 usable media assets. This research also indicates that each creative professional transfers 1,048 to 1,257 files to an average of 6.1 people per quarter.

NOTES FOR CALCULATOR TABLES (next page): The figures shown in Section I under the column, *Net Benefits*, reflect the total additional productivity gains and cost savings that a corresponding user would realize.

The figures shown in Section II under the column, *Retraining Costs*, reflect the total additional cost that a corresponding creative professional would incur becoming proficient in the new environment

The figures shown in Section III under the column, *Direct Costs*, reflect the total additional cost that a corresponding creative professional would incur with the designated conversion.

The figures shown in Section IV under the column, *Transfer Costs*, reflect the total additional cost that a corresponding creative professional would incur with the designated conversion.

Platform Conversion R.O.I. Scenarios

This section on the following page shows you how to calculate the return-on-investment when converting from one platform architecture to another.

Step one: To calculate the benefit of converting in Section I (of either table), simply enter the number of creatives (creative professionals) employed by your firm in the appropriate category(s), and multiply each number by its corresponding dollar amount in the *Net Benefits* column. These calculations will populate the column *Totals By Role*.

Step two: Total the dollar figures in the column, *Totals by Role*. The sum represents your firm's *Total Three-Year Gross Benefit* for the designated conversion.

Step three: Place the figure, *Total Three-Year Gross Benefits*, in its corresponding area in Section V, CALCULATION TABLE.

Step four: In Section II, LABOR COSTS, place the number of creative professionals employed by your firm on the appropriate line(s). Multiply each figure by its corresponding amount in the *Retraining Cost* column. (Note: our research shows that oftentimes employees will leave after a conversion, so there may be recruiting costs in place of retraining costs equalling roughly the same amount.) This will populate the column, *Totals by Role*.

Step five: Total the dollar figures in the column, *Totals by Role*. The sum represents your firm's *Three-Year Labor Costs* for the designated conversion.

Step six: In Section III, EQUIPMENT, SUPPORT AND SOFTWARE COSTS, place the number of creative professionals employed by your firm on the appropriate line(s). Multiply each figure by its corresponding amount in the *Direct Costs* column. This sum will populate the column, *Totals by Role*.

Step seven: Total the dollar figures in the column, *Totals by Role*. The sum represents your firm's *Three-Year Direct Costs* for the designated conversion.

Step eight: Calculate the cash salvage value of the equipment you wish to convert in the resale market for used equipment and enter the value in the *Minus Salvage Costs on Original Equipment* position (usually around 10 percent of original purchase price).

Step nine: Subtract *Salvage Costs on Original Equipment* from *Three-Year Direct Costs* to yield *Total Three-Year Direct Costs*.

Step ten: In Section IV, ASSET TRANSFER COSTS, place the number of files used by your firm on the appropriate line(s). Multiply each figure by its corresponding amount in the *Transfer Cost* column. This sum will populate the column, *Totals by Role*.

Step eleven: Total the dollar figures in the column, *Totals by Role*. The sum represents your firm's *Three-Year Transfer Costs* for the designated conversion.

Step twelve: In Section V, CALCULATION TABLE, add together the Total Costs from sections II, III and IV to yield a *Total Three-Year Costs* figure.

Step thirteen: Subtract the figure for *Total Three-Year Costs* from the figure, *Total Three-Year Gross Benefits*. This will yield, *Total Three-Year Net Benefit*.

Step fourteen: Also in Section V, place the *Total Three-Year Costs* in the area marked with a divisor (\div), and divide that figure into the *Total Three-Year Net Benefit*. This will yield the number of times return-on-investment for the featured platform conversion.

TRANSFERRING AUTHORS FROM MAC POWER PC TO WINDOWS NT

I. ADDITIONAL BENEFITS

	Windows NT Benefits	PowerPC Benefits	Net Benefits	Number of Creatives	Totals by Role
Animation	\$127,442-	\$108,382 =	\$19,060	X ___ =	
CD-ROM Publishing	\$54,142-	\$128,110 =	(\$73,968)	X ___ =	
Desktop Publishing	\$38,021-	\$101,018 =	(\$62,997)	X ___ =	
Digital Photography	\$46,168-	\$81,452 =	(\$35,284)	X ___ =	
Digital Video	\$65,803-	\$167,183 =	(\$101,380)	X ___ =	
Executive Management	\$51,501-	\$129,249 =	(\$77,748)	X ___ =	
General Creative	\$83,561-	\$145,334 =	(\$61,773)	X ___ =	
Marcom & Training	\$62,674-	\$60,534 =	\$2,141	X ___ =	
Web Authoring	\$71,729-	\$150,020 =	(\$78,291)	X ___ =	
Total Three-Year Gross Benefit					\$ _____

II. LABOR COSTS

	Retraining Costs	Number of Creatives	Totals by Role
Animation	\$3,992	X ___ =	
CD-ROM Publishing	\$3,132	X ___ =	
Desktop Publishing	\$3,158	X ___ =	
Digital Photography	\$3,330	X ___ =	
Digital Video	\$3,518	X ___ =	
Executive Management	\$3,157	X ___ =	
General Creative	\$3,522	X ___ =	
Marcom & Training	\$3,192	X ___ =	
Web Authoring	\$3,398	X ___ =	
Three-Year Labor Costs			\$ _____

III. EQUIPMENT, SUPPORT, AND SOFTWARE COSTS

	Direct Costs	Number of Creatives	Totals by Role
Animation	\$25,167	X ___ =	
CD-ROM Publishing	\$22,822	X ___ =	
Desktop Publishing	\$17,810	X ___ =	
Digital Photography	\$19,160	X ___ =	
Digital Video	\$23,082	X ___ =	
Executive Management	\$18,750	X ___ =	
General Creative	\$23,621	X ___ =	
Marcom & Training	\$18,195	X ___ =	
Web Authoring	\$28,609	X ___ =	
Three-Year Direct Costs			\$ _____
Minus Salvage on Original Equipment		-	\$ _____
Total Three-Year Direct Costs			\$ _____

IV. MEDIA ASSET TRANSFER COSTS

	Transfer Costs	Number of Files	Totals by Role
Animation	\$108	X ___ =	
CD-ROM Publishing	\$18	X ___ =	
Desktop Publishing	\$79	X ___ =	
Digital Photography	\$28	X ___ =	
Digital Video	\$184	X ___ =	
Executive Management	\$28	X ___ =	
General Creative	\$25	X ___ =	
Marcom & Training	\$13	X ___ =	
Web Authoring	\$33	X ___ =	
Three-Year Transfer Costs			\$ _____

V. CALCULATION TABLE

Total Three-Year Gross Benefits	\$ _____
Total Three-Year Costs (II+III+IV)	- \$ _____
Total Three-Year Net Benefit	\$ _____
Total Three-Year Costs	÷ \$ _____
Times Return-on-Investment	_____

TRANSFERRING AUTHORS FROM WINDOWS NT TO MAC POWER PC

I. ADDITIONAL BENEFITS

	Windows NT Benefits	PowerPC Benefits	Net Benefits	Number of Creatives	Totals by Role
Animation	\$108,382-	\$127,442 =	(\$19,060)	X ___ =	
CD-ROM Publishing	\$128,110-	\$54,142 =	\$73,968	X ___ =	
Desktop Publishing	\$101,018-	\$38,021 =	\$62,997	X ___ =	
Digital Photography	\$81,452-	\$46,168 =	\$35,284	X ___ =	
Digital Video	\$167,183-	\$65,803 =	\$101,380	X ___ =	
Executive Management	\$129,249-	\$51,501 =	\$77,748	X ___ =	
General Creative	\$145,334-	\$83,561 =	\$61,773	X ___ =	
Marcom & Training	\$60,534-	\$62,674 =	(\$2,141)	X ___ =	
Web Authoring	\$150,020-	\$71,729 =	\$78,291	X ___ =	
Total Three-Year Gross Benefit					\$ _____

II. LABOR COSTS

	Retraining Costs	Number of Creatives	Totals by Role
Animation	\$2,021	X ___ =	
CD-ROM Publishing	\$1,161	X ___ =	
Desktop Publishing	\$1,187	X ___ =	
Digital Photography	\$1,359	X ___ =	
Digital Video	\$1,547	X ___ =	
Executive Management	\$1,186	X ___ =	
General Creative	\$79,982	X ___ =	
Marcom & Training	\$14,340	X ___ =	
Web Authoring	\$91,454	X ___ =	
Three-Year Labor Costs			\$ _____

III. EQUIPMENT, SUPPORT, AND SOFTWARE COSTS

	Direct Costs	Number of Creatives	Totals by Role
Animation	\$17,731	X ___ =	
CD-ROM Publishing	\$13,465	X ___ =	
Desktop Publishing	\$14,458	X ___ =	
Digital Photography	\$12,411	X ___ =	
Digital Video	\$14,731	X ___ =	
Executive Management	\$18,829	X ___ =	
General Creative	\$16,640	X ___ =	
Marcom & Training	\$12,428	X ___ =	
Web Authoring	\$19,465	X ___ =	
Three-Year Direct Costs			\$ _____
Minus Salvage on Original Equipment		-	\$ _____
Total Three-Year Direct Costs			\$ _____

IV. MEDIA ASSET TRANSFER COSTS

	Transfer Costs	Number of Files	Totals by Role
Animation	\$126	X ___ =	
CD-ROM Publishing	\$11	X ___ =	
Desktop Publishing	\$56	X ___ =	
Digital Photography	\$13	X ___ =	
Digital Video	\$59	X ___ =	
Executive Management	\$18	X ___ =	
General Creative	\$16	X ___ =	
Marcom & Training	\$13	X ___ =	
Web Authoring	\$27	X ___ =	
Three-Year Transfer Costs			\$ _____

V. CALCULATION TABLE

Total Three-Year Gross Benefits	\$ _____
Total Three-Year Costs (II+III+IV)	- \$ _____
Total Three-Year Net Benefit	\$ _____
Total Three-Year Costs	÷ \$ _____
Times Return-on-Investment	_____

F.A.Q. (FREQUENTLY ASKED QUESTIONS)

Why does the IS Department want to replace Macs with Wintel NT systems?

This proves a classic story of cost reduction versus value creation. Most IS managers view reducing costs as an important part of their job. They do so by adopting industry standards, and by removing unnecessary variables that add complexity and cost to a business operation—all laudable and worthwhile goals.

On the other side of the house, the product development, marketing, and creative communities see themselves creating and adding new value to the enterprise.

Creative professionals want to make their company's or client's product look as attractive and compelling as possible, using the best tools available to create the highest production values.

So senior management must decide which strategy (reduced cost versus value creation) best serves the prime directive of the enterprise—to profitably find and serve customers—building shareholder value as a result. Hint: use the best “creative” tools for the job.

What happens when a studio replaces Macs with Wintel platforms?

GISTICS sampled more than a dozen production studios that converted from Macintosh to Wintel platforms and found five critical consequences.

1. Overall productivity falls by 27 percent, and stays at that level with little or no appreciable improvement for nine months. Creative professionals end up spending more prime-time authoring hours futzing with technology than getting their work produced.

2. Studio profitability plunges. Administrivia, format changes, and configuration issues suck up 20 to 30 percent more time than expected. Users become depressed, output plunges, profits vanish.

3. Nearly half of the creative team resigns. Long time Macintosh users deeply resent the forced march to what they consider plainly inferior, less productive, clumsy, and wasteful Wintel platforms. Not surprisingly, the *most creative and productive members* of the studio team leave first.

4. The replacement pool of available, proficient talent shrinks by 63 percent. The studio will find that most journey-person craft professionals do not and will not use Wintel platforms, forcing the studio to hire young, naive, unskilled, and, generally, the least productive workers.

5. Quality of work declines. For projects involving print, typically the project team will experience 7.1 times more Postscript processing errors—sources of non-billable rework. Clients will reject studio work 5.4 times more often due to color management errors. And the list goes on.

Commercial studios discover during the intervening months that their best clients—the ones who pay price premiums for excellent work—begin to go elsewhere. As revenues falter due to client defections and lower production per hour of labor, studio managers face the impossible task of showing profit.

Of the studios GISTICS studied that underwent this conversion process, three went out of business, three simply blamed corporate management of the parent enterprise (and lived with the lower productivity), and the remaining five quietly converted back to the Macintosh platform.

What's wrong with the Pentium platforms?

As the Pentium and its complex instruction computing set (CICS) microprocessor nears the end of its lifecycle, it will eventually fail to keep up with Moore's Law—a doubling of microprocessor speed every 18 months—unless it changes to a reduced instruction set or RISC microprocessor.

Intel has already said it will do this. By 1998, semiconductor physics will force Intel to switch to a pure RISC architecture, requiring new optimized compilers, programming tools, and a wholesale rewrite of large portions of the operating system and application programs.

Just as Apple moved from the 68000 microprocessor to the Power PC chip, the Wintel collective will undergo a similar transition. However, given the magnitude of the conversion process, the number of hardware vendors involved, the disunion of operating systems and hardware platforms, and the current complexity of media creation tools, most software developers will need 12 to 24 months to make the transition effectively.

This will leave the time-is-money, “I consume every MIP I can get” media producer stuck using X86-based application software running in emulation mode on new IA-64 (64-bit Intel chips) platforms.

In contrast, by 1998, the standard Macintosh platform for the creative professional will deliver 450 to 750 megahertz chips running native applications optimized for the Power PC chip. In 1999, the Macintosh user will enjoy an easy conversion to 64-bit platforms, running a harmonized OS (fully integrated with the “Mach” OS kernel and Next OpenStep).

This alone will double or quadruple the effective performance of desktop systems compared to the Wintel platform, giving Macintosh users a truly staggering competitive advantage for studios.

Deployment of Pentium systems may make sense after software publishers undergo the difficult transition to the new 64-bit Intel chip. Conclusion: the 32-bit Pentium represents an obsolete technology for the studio.

Does NT make sense as a server for studios?

Many IT managers look at the Windows NT Server as an ideal solution for many areas of their enterprise. It incorporates many advanced features that should reduce the cost of departmental servers, especially if they have deployed client-server applications, e.g., accounts payable.

However, with the NT placed in media-production environments, research data reveals a radically different picture:

File services (the ability to transfer media files over the network within the work group) run nine times slower than FileShare on native Apple servers*. This steals 45 additional prime-time hours in authoring and composition from each media creator per year. These problems multiply with NT's notoriously lengthy time needed for font installation and management.

Print services (the ability to print high-resolution images) run three times slower than standard Macintosh servers. Microsoft has not optimized NT Server for processing bit-mapped graphics or PostScript fonts—two critical items for all studios. NT Servers produce more processing errors than corresponding Macintosh servers. This creates rework cycles and eats profits—most firms cannot charge clients for rework of this nature.

Plug-and-play (the ability to add or swap peripherals—an event that occurs on an average every 2.1 weeks in a studio) remains unsupported in NT. Each attempt to plug in new hardware typically results in on-site technical episodes of 4 hours to 4 days each.

Adding new networking clients (plugging a new platform, desktop, or portable into the work group network) often requires a special service call by a trained engineer. In summary, NT servers represent a stop-gap, incomplete solution for the studio.

* RunShare 3.0 Standard Graphic Arts Server Benchmark.
<http://www.runusa.com>

How much revenue must a creative professional produce per year to survive?

For most people, a supportable income means earning enough money to pay the bills and maintain a certain quality of life.

However, ongoing technical innovation and larger economic forces make this business assumption highly problematic, especially for creative professionals who produce commercial media.

Extensive economic analysis of the minimum revenue needed for long-term survival in the Media Producer Industry underscores how much creative professionals must earn to pay themselves a living wage and earn sufficient profit for reinvestment in new equipment, training, and support services.

Failure to earn this minimum amount means that they will find themselves falling farther and farther behind economically—they will not be able to buy the tools and systems they need to stay competitive.

Solo Contractors must produce \$94,826 in annual revenues to stay competitive in the market.

Small Teams must produce \$188,754 in revenues for each team member, or they will fail to keep up.

Small Businesses must produce \$197,497 in revenues per creative professional, or they will fail to produce enough capital to continue to grow their businesses.

Large Studios must produce \$210,616 in revenues (and internal value equivalents) per creative professional, or they will find their business valuations significantly depreciated, or merged into another studio that “can run a tighter ship.”

Global Studios must produce \$236,399 in revenues (and internal value equivalents) per creative professional, or they will find themselves targets of downsizing by corporate parents or as candidates for acquisition by corporate raiders.

What happened to Apple?

The epic saga of Apple Computer remains far from over. Its current chapter contains disturbing, unsettling news of \$1.5 billion in losses, falling market share, and its president resigning.

Clearly, Apple management must realign its business to key markets where it holds a commanding if not dominant share of

market, leveraging its market position into sustained profitability. Advertising, education, entertainment, new media, and publishing constitute these key markets.

Apple must continue to invest R&D dollars in extending its lead in these markets, adding new products and enhancements that add value to these media-producing customers.

Meanwhile, something else entirely lies at the heart of Apple's current problems. They have done a great job—some may argue too good a job—serving these core markets. They created a compelling economic platform, driving it to market saturation well ahead of the broader business and consumer markets in 1996 and 1997. Apple hit the wall because they couldn't find new customers outside of their core markets of advertising, entertainment, et cetera.

Most of the people in Apple's core markets already have their Macintoshes. We call these “aftermarkets”—markets comprised of customers who have already bought products or services and satisfied their basic needs.

The emergence and predominance of the aftermarket forces the successful vendor to shift its focus away from market-share growth, emphasizing instead the growing of its share of customers. This means adding new value to the customers that the company already has, extending a basic platform with new products and services.

On a more fundamental level, the winning vendor will shift emphasis from cost-to-acquire, e.g., obtaining the lowest price for a unit of performance, to a winning return-on-investment value proposition.

In aftermarkets, return-on-investment is king. This underscores why Apple will succeed in those markets for the foreseeable future.

Apple Macintosh users bring more net profit dollars to the bottom line than Windows users.

In the informal shorthand of a market, **Mac media means net profits.**

Bottom line, why Mac?

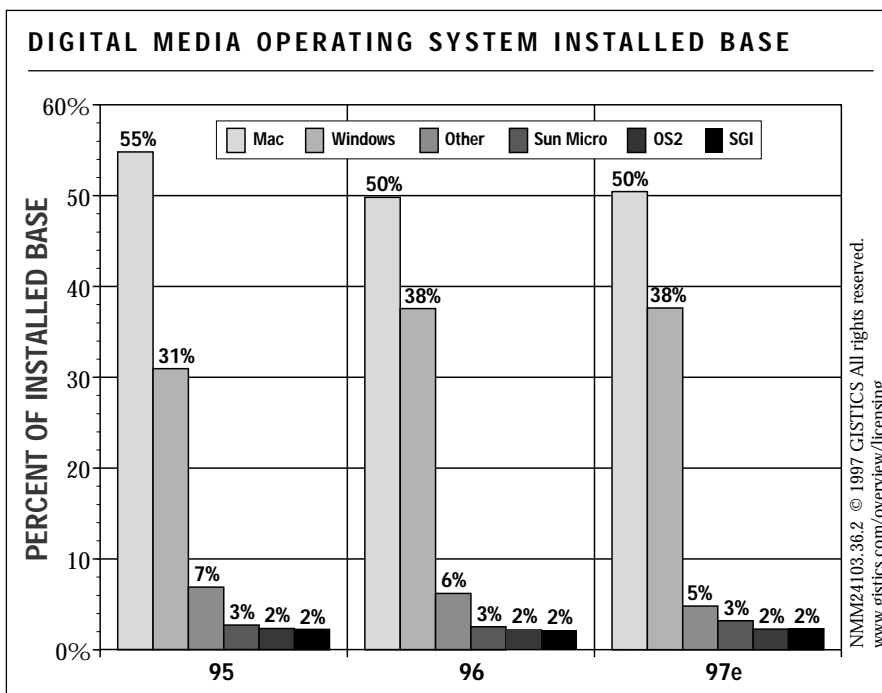
Overall, the Macintosh-based creative professional enjoys a \$14,488 net profit advantage (derived from \$26,441 in revenue gains and \$2,211 in lower costs of ownership) over a Windows user working on similar projects.

These advantages vary not only by creative segment but by the size and complexity of the enterprise.

GISTICS research reveals that enterprises buying new Power PC Macs will achieve payback in 4.59 months. This means that the combined cost savings and productivity gains will pay for a new Macintosh in less than five months.

In sharp contrast, it takes an enterprise buying a new Wintel NT platform an average of 12.58 months to recoup its investment—2.5 times as long as the Mac.

The difference of 6.64 months translates into bottom-line profit, underscoring why Macintosh-based enterprises earn \$12.34 more per hour of labor than do Windows-based shops. Because the Macintosh-based business earns more money for an hour of labor, it shares some of that profit with its workers, explaining why Macintosh creative professionals earn \$5.01 more per hour than their Windows counterparts.



RESEARCH METHODOLOGY

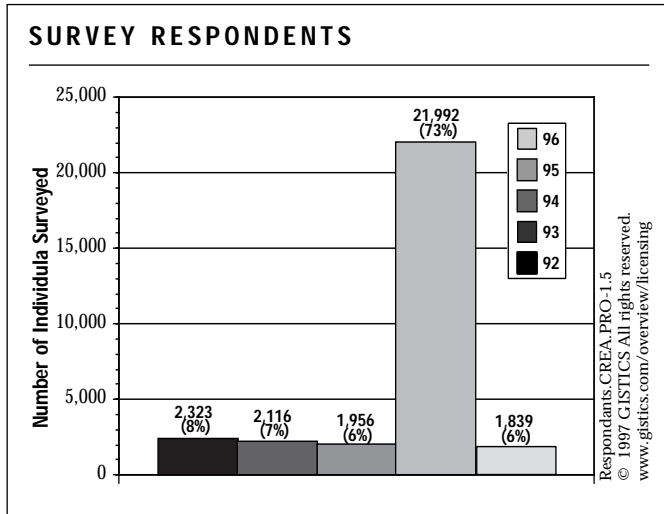
This ROI TechBrief presents economic data findings developed from research of 30,226 media producers. GISTICS has collected this data each year since 1991, compiling it from random mailings to creative professional mailing lists, authoring tool customers, and industry trade associations.

To incentivize respondent participation, GISTICS offers free reports and white papers in exchange. GISTICS compiles respondent data in two annual studies: 1) **Annual Interactive Telemedia Industry Assessment**, and 2) **Annual Comprehensive Audit of Media Professionals, Development Practices, and Business Methods**.

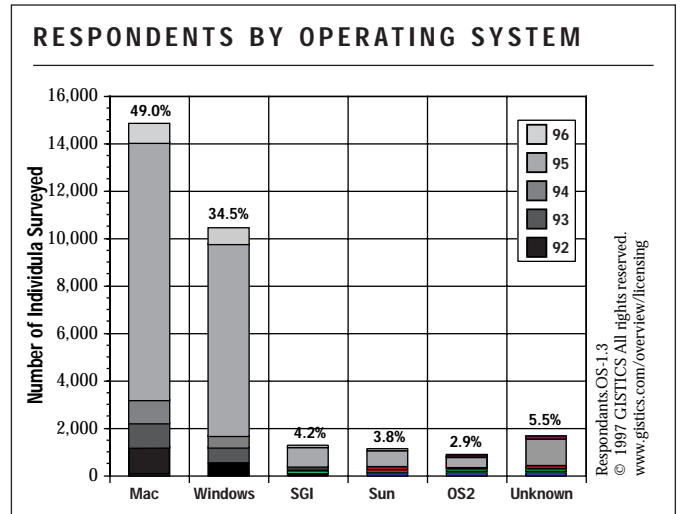
The Assessment tracks technical and business functions among

interactive, multimedia, and Web development firms. The Audit examines the productivity and profitability of digital media producers (print, electronic, digital, and interactive).

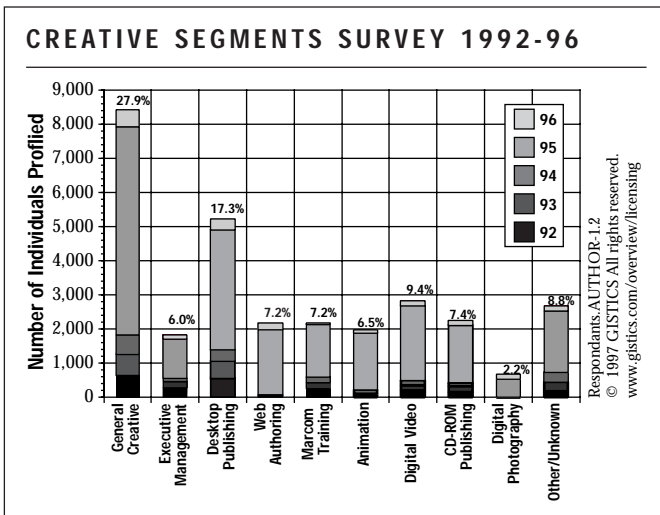
SPECIAL NOTE: GISTICS continues to collect survey data independently of any vendor mentioned in this or any other GISTICS report. Electively, technology vendors may license GISTICS data and reports for internal use or publication distribution. That said, the opinions expressed in this report remain wholly those of GISTICS and reflect a principal advocacy of the best solutions as validated by primary research.



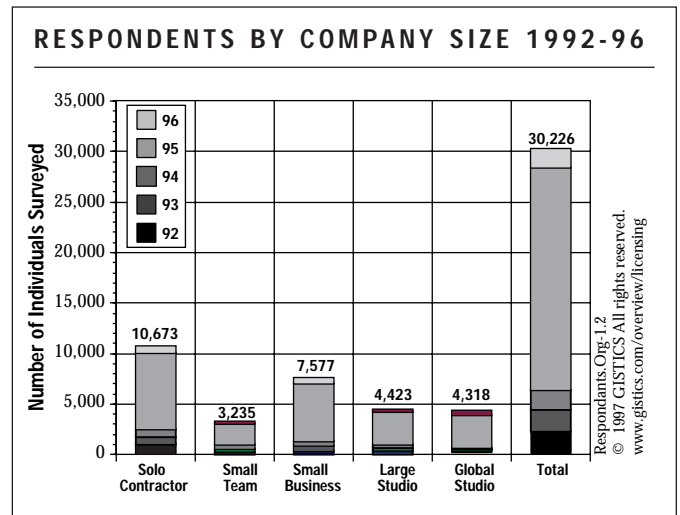
This figure illustrates that GISTICS gathered the bulk of its data for the year 1995—21,992 surveys—from respondents in North America, enabling a rigorous comparison of data across all major segments: nine creative segments, 12 industries, and five studio sizes.



This figure illustrates distribution of primary platforms used by respondents across the nine creative professional segments. This distribution generally reflects the industry composition; sample size remains sufficient to project statistically valid findings.



In 1996, GISTICS gathered an additional 1,839 surveys, enabling us to perform productivity comparisons of all the major segments, industries, and studio sizes.



This figure illustrates the distribution of respondents by size of production studio. Note: The actual size of the enterprise may vary extensively; for purposes of this research, GISTICS categorizes studio sizes by the number of media creators.

Duplication or Photocopying Prohibited. Low-cost circulation copies available. Contact research@gistics.com.

ARGONAUT RESEARCH PARTNERS

Each year GISTICS exchanges thousands of white papers and reports—generally sold for \$79 to \$495 each—for surveys completed by members of the advertising, publishing, entertainment, and new media industries. In this spirit, we invite you to join our free knowledge exchange network—the Argonaut Research Partnership. Based on your professional qualifications and experience, and our current research activities, GISTICS will use the data in this enrollment form to send you an appropriate survey—which you can choose to complete or not.

Each survey you complete earns you a free report or white paper. It's just that simple. If you qualify, we will notify you first via e-mail of new GISTICS publications and research reports—and opportunities to get one at no cost.

All respondent survey data remains strictly confidential. We use surveys to build non-attributed, source-independent statistical summaries—like those used in this TechBrief. We also provide free electronic updates of our reports to the Argonaut Research Partnership.

Should you have questions, comments or concerns, please contact us at research@gistics.com.

BACKGROUND

Name _____

BUSINESS ADDRESS (At least one address required)

Company _____

Your Title _____

Street _____

City _____ State or Province _____

Zip / Postal Code _____ Country _____

HOME OR ALTERNATE MAILING ADDRESS (Optional unless primary place of business)

Street _____

City _____ State or Province _____

Zip / Postal Code _____ Country _____

	Country Code	Area Code	Number	Ext.
Main Business Telephone				
800 Business Telephone				
Direct Business Telephone				
General Business Fax				
Personal / Direct Fax				

Web site(s) <http://> _____

<http://> _____

* Must affix business card to receive free papers.

PERSONAL COMPUTING PROFILE

Primary platform you use to create media (select one)

- | | |
|---|--|
| <input type="radio"/> DOS | <input type="radio"/> Macintosh (68x) |
| <input type="radio"/> MS Windows 3x | <input type="radio"/> MS Windows NT |
| <input type="radio"/> MS Windows 95 | <input type="radio"/> OS/2 |
| <input type="radio"/> Power Macintosh (PPC) | <input type="radio"/> Silicon Graphics |
| <input type="radio"/> Sun | <input type="radio"/> Other _____ |
| <input type="radio"/> None | <input type="radio"/> No current primary personal computer |

Secondary platform you use to create media (select one)

- | | |
|---|--|
| <input type="radio"/> DOS | <input type="radio"/> Macintosh (68x) |
| <input type="radio"/> MS Windows 3x | <input type="radio"/> MS Windows NT |
| <input type="radio"/> MS Windows 95 | <input type="radio"/> OS/2 |
| <input type="radio"/> Power Macintosh (PPC) | <input type="radio"/> Silicon Graphics |
| <input type="radio"/> Sun | <input type="radio"/> Other _____ |
| <input type="radio"/> None | <input type="radio"/> No current secondary personal computer |

PROFESSIONAL PROFILE

Work Profile: You spend more than 50% of your work day doing (select one)

- | | |
|---|--|
| <input type="radio"/> Animation, 2D or 3D | <input type="radio"/> Digital video (any form) |
| <input type="radio"/> Desktop publishing | <input type="radio"/> Multimedia CD-ROM or kiosks |
| <input type="radio"/> Digital photography | <input type="radio"/> Web authoring (includes HTML layout) |
| <input type="radio"/> Media management (with some creative direction and production) | |
| <input type="radio"/> Marcom & training (corporate functions that commission or use media) | |
| <input type="radio"/> General creative (multiple disciplines: illustration, DTP, digital audio) | |
| <input type="radio"/> Other support activities (includes programming, MIS, database admin.) | |

Scope of decision-making responsibility (select one)

- | | |
|------------------------------------|---|
| <input type="radio"/> Company-wide | <input type="radio"/> Contractor |
| <input type="radio"/> Divisional | <input type="radio"/> Personal projects |
| <input type="radio"/> Work group | <input type="radio"/> Unknown / not specified |

Status (select one)

- | | |
|--|--|
| <input type="radio"/> Employed at firm | <input type="radio"/> Self-employed contractor |
| <input type="radio"/> Unemployed | <input type="radio"/> Student |
| <input type="radio"/> Retired / disabled | <input type="radio"/> Other _____ |

ENTERPRISE PROFILE

Year enterprise established _____

Legal entity type *FILL IN ONE CIRCLE ONLY*

- | | |
|---|---|
| <input type="radio"/> C corporation | <input type="radio"/> S corporation |
| <input type="radio"/> Education | <input type="radio"/> Foreign corporation |
| <input type="radio"/> Government | <input type="radio"/> Limited liability partnership |
| <input type="radio"/> Non profit | <input type="radio"/> Partnership |
| <input type="radio"/> Proprietary / dba | <input type="radio"/> Other/offshore _____ |

Type of media-producing organization *FILL IN ONE CIRCLE ONLY*

- | | |
|---|---|
| <input type="radio"/> Ad / design agencies | <input type="radio"/> Animation / Computer Graphics |
| <input type="radio"/> AV presentation support | <input type="radio"/> Consulting services |
| <input type="radio"/> Corp. / in-house department | <input type="radio"/> Digital music / audio |
| <input type="radio"/> DTP / art production | <input type="radio"/> Film production |
| <input type="radio"/> Marketing services / P.R. | <input type="radio"/> New media |
| <input type="radio"/> Publishing (All) | <input type="radio"/> Student |
| <input type="radio"/> Technology providers | <input type="radio"/> Training & education |
| <input type="radio"/> Video production / Post | <input type="radio"/> Unemployed |
| <input type="radio"/> Other _____ | |

Structure of Media-Producing Unit *FILL IN ONE CIRCLE ONLY*

(Number of media creators)

- | | |
|--|---|
| <input type="radio"/> Solo contractor (1) | <input type="radio"/> Large studio (36 to 120) |
| <input type="radio"/> Small team (2 to 6) | <input type="radio"/> Global studio* (121 to 2,500) |
| <input type="radio"/> Small business (7 to 35) | <input type="radio"/> None of the above |
- *or creative services department at firms with more than 250 networked computers (all functions)

LIST ALL INVOLVED; MULTIPLE COUNTS O.K.

	Employees	Contractors
Total in organization	_____	_____
Involved with marketing & advertising	_____	_____
Involved with media production	_____	_____
Involved with training	_____	_____
Involved with Web sites	_____	_____

Market focus *FILL IN ALL CIRCLES THAT APPLY*

- | | |
|-------------------------------------|---|
| <input type="radio"/> Business | <input type="radio"/> Business / technical offering |
| <input type="radio"/> Consumer | <input type="radio"/> Consumer / technical offering |
| <input type="radio"/> Education | <input type="radio"/> Industrial |
| <input type="radio"/> Public sector | <input type="radio"/> Other _____ |

Geographic markets served *FILL IN ALL CIRCLES THAT APPLY*

- | | | |
|-------------------------------------|---------------------------------------|--------------------------------------|
| <input type="radio"/> Africa | <input type="radio"/> Central America | <input type="radio"/> Eastern Europe |
| <input type="radio"/> Greater Asia | <input type="radio"/> Middle East | <input type="radio"/> North America |
| <input type="radio"/> South America | <input type="radio"/> South Pacific | <input type="radio"/> Western Europe |
| <input type="radio"/> None | <input type="radio"/> Don't know | |

_____ **Number of company locations or campuses?**

_____ **Number of media-producing locations or campuses?**

_____ **Number of public company Web sites?**

_____ **Number of internal-use intranet systems?**

_____ **Number of servers used for intranets?**

_____ **Number of servers used for Web ?**

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Executive Order Form

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Executive Synopsis: <i>Software Aftermarket Opportunities and Challenges</i>	129.00		
Executive Synopsis: <i>Strategies for Media Asset Management</i>	129.00		
Industry White Paper: <i>Reengineering the Customer Registration Process for Earnings Growth and Higher Share of Customer</i>	495.00		
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This comprehensive service provides individually tailored combinations of executive seminars, publications, and consulting to end-user enterprises deploying media-related technology.

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Fireworks: Deployment Strategies for the Interactive Corporation picks up where Firebrands leaves off: how to implement “Web-integrated marketing.” It includes practical maps for deploying customer registration, database-driven one-to-one marketing, and Web-based customer evangelism.

Media Asset Management: A Strategic Business Case provides a concise overview of the opportunities, challenges, and return-on-investment scenarios for a fully deployed media asset management system; includes a review of case studies and Best Practices associated with deployment and full-scale operation.

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Each of these publications results from a collaborative development process with client enterprise managers. Drawn from preexisting editorial and visual assets of GISTICS, these publications provide a rapid, effective way to communicate the benefits of an enterprise-wide, cross-divisional solution in an objective, independent, and non-threatening manner.

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ASK How Guides summarize the business solution for five levels of enterprise in 13 industries, includes industry benchmarks, directory of

solution providers, a customer deployment case, Best Practice prescriptives for deployment, ROI calculator, and discussion of crucial alliances and partnerships.

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ABOUT GISTICS

Founded in 1987, GISTICS Incorporated has pioneered an area of economic research of new technology deployment. Called Solutions Research, this methodology investigates the buying and using experience of customers. Specifically, it tracks late-stage early adopters who have successfully crafted new strategic business solutions.

By focusing on the most successful, productive, and profitable early adopters of a technology, GISTICS systematically documents their approach and strategy.

PUBLICATIONS

ASK How Guides (\$79 U.S.)

Purchase Advisory: Media Asset Management

- Solo Contractor
- Small Team
- Small Business
- Large Studio
- Global Studio
- Supply Chain

Executive Synopses (\$129 U.S.)

Considerations for Investment in Foundation Technologies—Critical Success Factors for the Interactive, Multimedia, and Telemedia Developer (38 Pages, 35 Charts)

Software Aftermarket Opportunities and Challenges—Best Practice Models and Prescriptives for Reengineering the Customer Registration Process for Earnings Growth and Higher Share of Customer (30 Pages, 24 Charts, 3 Tables)

ROI TechBrief (\$129 U.S.)

Trade-Off Analysis for Deployment of Macintosh and Windows Platforms in Media-Producer Enterprises (40 Pages, 42 Charts, 9 Tables)

Volume discounts for reprints.

Industry White Paper (\$495 U.S.)

Reengineering the Customer Registration Process for Earnings Growth and Higher Share of Customer—Best Practice Models and Prescriptives for Success in the Aftermarket for Software, Information, and Interactive Entertainment (98 Pages, 84 Charts, 15 Tables)

Market Reports (in development)

Media Asset Management Market Assessment for 1997
DVD-ROM Authoring Tools Market Assessment for 1997
Techno-Consumer Market Assessment for 1997

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This produces a series of benchmarks of Best Practice and process models that can guide future customers—individuals and firms who insist upon buying stable, proven business solutions.

ROI TechBriefs summarize this research of Best Practice, and examine what technologies and practices most contribute to productivity and return-on-investment.

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