The following table identifies the significant components of the pre-tax charge related to the 1999 actions as well as the after-tax charges and the effect on earnings per share assuming dilution; the investments and other asset write-downs in 1999; and the liability as of December 31, 1999:

(Dollars in millions except per share amounts)	Total Pre-Tax Charges*	After-Tax Charges	Effect on Earnings per Share – Assuming Dilution	Investments and Other Asset Write-Downs	Liability Created in 1999	Liability as of Dec. 31, 1999
Technology Group						
MD Actions:						
DRAM						
Equipment (1)	$ 662	$ 603	$ .32	$ 662	$ —	$ —
Employee Terminations (2)	167	167	.09	—	167	149
Dominion Investment (3)	171	104	.05	171	—	—
MiCRUS Investment (4)	152	92	.05	—	152	152
SSD Actions:						
Equipment (5)	337	277	.15	337	—	—
Employee Terminations (6)	23	14	.01	—	23	7
NHD Action:						
Inventory Write-downs and Contract Cancellations (7)	178	109	.06	178	—	—
Total 1999 Actions	$ 1,690	$ 1,366	$ .73	$ 1,348	$ 342	$ 308

* With the exception of NHD inventory write-downs, all charges were recorded in Selling, general and administrative expense. NHD inventory write-downs were recorded in Hardware cost.

(1) Represents (a) the difference between net book value and fair value of assets that were contributed to a joint venture, (b) the book value of assets that were idled as a result of the MD actions and that were scrapped and (c) the difference between the net book value and the appraised fair value of test equipment subject to sale-leaseback agreements.

(2) Workforce reductions that affect approximately 790 employees (455 direct manufacturing and 335 indirect manufacturing) in France. The workforce reductions are expected to be substantially completed by the end of the first quarter of 2000.

(3) Write-off of investment in joint venture at the signing of the agreement with Toshiba Corporation.

(4) Acquisition of minority interest in MiCRUS and charges for equipment leasehold cancellation liabilities and lease rental payments for idle equipment.

(5) Represents (a) the book value of assets that were idled as a result of the SSD actions and scrapped, (b) write-downs to fair value of equipment under contract for sale and delivery by December 31, 1999, and March 31, 2000, and (c) the difference between the net book value and the appraised fair value of equipment subject to sale-leaseback agreements.

(6) Workforce reductions that affect approximately 900 employees (780 direct manufacturing and 120 indirect manufacturing) in the United States. There are 210 terminations remaining in the first half of 2000.

(7) Write-down to net realizable value of inventory of router and switch products ($144 million) and contract cancellation fees ($34 million) related to deterioration in demand for router and switch products.

Change in Estimate

As a result of a change in estimate of the useful life of personal computers (PCs) from five years to three years, the company recognized a charge in the second quarter of 1999 of $404 million ($241 million after tax, $.13 per diluted common share). In the second quarter, the company wrote off the net book value of PCs that were 3 years or older and, therefore, had no remaining useful life. The remaining book value of the assets will be depreciated over the remaining new useful life. The net effect on future operations is expected to be minimal as the increased depreciation due to the shorter life will be offset by the lower depreciable base attributable to the write-off of PCs older than three years.

S Research, Development and Engineering

Research, development and engineering expense was $5,273 million in 1999, $5,046 million in 1998 and $4,877 million in 1997. Expenses for product-related engineering included in these amounts were $698 million, $580 million and $570 million in 1999, 1998 and 1997, respectively.

The company had expenses of $4,575 million in 1999, $4,466 million in 1998 and $4,307 million in 1997 for basic scientific research and the application of scientific advances to the development of new and improved products and their uses. Of these amounts, software-related expenses were $2,036 million, $2,086 million and $2,016 million in 1999, 1998 and 1997, respectively. Included in the expense each year are charges for acquired in-process research and development. See note D, “Acquisitions/Divestitures” on pages 72 and 73 for further information about that expense.

T Earnings Per Share of Common Stock

The following table sets forth the computation of basic and diluted earnings per share of common stock.

For the year ended December 31:	1999	1998	1997
Number of shares on which basic earnings per share is calculated:			
Weighted-average shares outstanding during year	**1,808,538,346**	**1,869,005,570**	**1,966,572,722**
Add—Incremental shares under stock compensation plans	**59,344,849**	**51,124,900**	**55,297,162**
Add—Incremental shares associated with contingently issuable shares	**3,190,717**	**—**	**—**
Number of shares on which diluted earnings per share is calculated	**1,871,073,912**	**1,920,130,470**	**2,021,869,884**
Net income applicable to common stockholders (millions)	**$ 7,692**	**$ 6,308**	**$ 6,073**
Add—net income applicable to contingently issuable shares (millions)	**11**	**—**	**—**
Net income on which diluted earnings per share is calculated (millions)	**$ 7,703**	**$ 6,308**	**$ 6,073**
Earnings per share of common stock:			
Assuming dilution	**$ 4.12**	**$ 3.29**	**$ 3.00**
Basic	**$ 4.25**	**$ 3.38**	**$ 3.09**

Stock options to purchase 27,355,056 common shares in 1999, 4,124,730 shares in 1998 and 331,666 shares in 1997 were outstanding, but were not included in the computation of diluted earnings per share because the exercise price of the options was greater than the average market price of the common shares and, therefore, the effect would have been antidilutive. In addition, 5,131,038 restricted stock units in 1998 relating to the company's Long Term Performance Plan were not included in the computation of diluted earnings per share as their effect would have been antidilutive. Net income applicable to common stockholders excludes preferred stock dividends of $20 million for 1999, 1998 and 1997.

U Rental Expense and Lease Commitments

Rental expense, including amounts charged to inventories and fixed assets and excluding amounts previously reserved, was $1,397 million in 1999, $1,431 million in 1998 and $1,280 million in 1997. The table below depicts (a) gross minimum rental commitments under noncancelable leases, including amounts related to vacant space associated with infrastructure reduction and restructuring actions taken through 1993 (previously reserved), and (b) offsetting sublease income commitments. These amounts generally reflect activities related to office space and manufacturing equipment.

(Dollars in millions)	2000	2001	2002	2003	2004	Beyond 2004
Gross rental commitments	**$ 1,314**	**$ 1,143**	**$ 982**	**$ 769**	**$ 469**	**$ 1,213**
Vacant space	**219**	**168**	**122**	**75**	**41**	**130**
Sublease income commitments	**124**	**91**	**71**	**48**	**34**	**62**

V Stock-Based Compensation Plans

The company applies Accounting Principles Board (APB) Opinion No. 25, "Accounting for Stock Issued to Employees," and related Interpretations in accounting for its stock-based compensation plans. A description of the terms of the company's stock-based compensation plans follows:

Long-Term Performance Plan

Incentive awards are provided to officers and other key employees under the terms of the IBM 1999 Long-Term Performance Plan, which was approved by stockholders in April 1999, the IBM 1997 Long-Term Performance Plan, which was approved by stockholders in April 1997, and its predecessor plan, the IBM 1994 Long-Term Performance Plan ("the Plans"). The Plans are administered by the Executive Compensation and Management Resources Committee of the Board of Directors. The committee determines the type and terms of the awards to be granted, including vesting provisions.

Awards may include stock options, stock appreciation rights, restricted stock, cash or stock awards, or any combination thereof. The number of shares that may be issued under the IBM 1999 Long-Term Performance Plan is 118.7 million, which was 6.5 percent of the company's outstanding common stock on February 10, 1999. No shares were issued under this Plan during 1999. There were 33.7 million and 68.8 million unused shares available to be granted under the IBM 1997 Long-Term Performance Plan as of December 31, 1999 and 1998, respectively. As of December 31, 1999, there were no unused shares under the IBM 1994 Long-Term Performance Plan. There were 4.1 million shares available to be granted under that Plan as of December 31, 1998.

With the exception of stock options, these awards (which are expressed in terms of shares) are adjusted to fair value at the end of each period and the change in value is included in net income. Awards under the Plans resulted in compensation expense of $267.3 million, $322.4 million and $214.1 million in 1999, 1998 and 1997, respectively.

STOCK OPTION GRANTS

Stock options are granted to employees at an exercise price equal to the fair market value of the company's stock at the date of grant. Generally, options vest 25 percent per year, are fully vested four years from the grant date and have a term of 10 years. The following tables summarize option activity under the Plans during 1999, 1998 and 1997:

	1999		1998		1997	
	Wtd. Avg. Exercise Price	No. of Shares under Option	Wtd. Avg. Exercise Price	No. of Shares under Option	Wtd. Avg. Exercise Price	No. of Shares under Option
Balance at January 1	$ 36	131,443,850	$ 27	123,456,722	$ 22	122,870,644
Options granted	115	42,786,845	53	41,175,350	36	42,942,456
Options exercised	28	(23,160,228)	22	(29,633,476)	21	(39,260,010)
Options canceled/expired	61	(4,933,944)	36	(3,554,746)	28	(3,096,368)
Balance at December 31	$ 60	146,136,523	$ 36	131,443,850	$ 27	123,456,722
Exercisable at December 31	$ 29	51,599,735	$ 22	46,191,636	$ 19	53,239,096

The shares under option at December 31, 1999, were in the following exercise price ranges:

	Options Outstanding			Options Currently Exercisable	
Exercise Price Range	No. of Options	Wtd. Avg. Exercise Price	Wtd. Avg. Remaining Contractual Life (in years)	No. of Options	Wtd. Avg. Exercise Price
$ 10 – 40	64,827,422	$ 28	6	42,694,829	$ 24
$ 41 – 70	37,007,973	52	8	8,234,965	52
$ 71 – 100	17,135,848	87	9	664,991	76
$ 101 and over	27,165,280	127	10	4,950	126
	146,136,523	$ 60		51,599,735	$ 29

IBM Employees Stock Purchase Plan

The IBM Employees Stock Purchase Plan (ESPP) enables substantially all regular employees to purchase full or fractional shares of IBM common stock through payroll deductions of up to 10 percent of eligible compensation. The price an employee pays is 85 percent of the average market price on the last day of the applicable pay period. The stockholders approved the current plan in 1995. Approximately 57.3 million, 63.0 million and 71.0 million reserved unissued shares were available for purchase under the ESPP at December 31, 1999, 1998 and 1997, respectively.

During 1999, 1998 and 1997, employees purchased 5.7 million, 8.0 million and 9.4 million shares, respectively, all of which were treasury shares, and paid to IBM $514 million, $415 million and $354 million, respectively, for these shares.

Pro Forma Disclosure

In accordance with APB Opinion No. 25, the company does not recognize expense for stock options granted under the Plans or for employee stock purchases under the ESPP. SFAS No. 123, "Accounting for Stock-Based Compensation," requires a company to determine the fair market value of all awards of stock-based compensation using an option-pricing model and to disclose pro forma net income and earnings per share as if the resulting stock-based compensation amounts were recorded in the Consolidated Statement of Earnings. The table below presents these pro forma disclosures.

	1999		1998		1997	
(Dollars in millions except per share amounts)	As reported	Pro forma	As reported	Pro forma	As reported	Pro forma
Net income applicable to common shareholders	**$ 7,692**	**$ 7,044**	**$ 6,308**	**$ 5,985**	**$ 6,073**	**$ 5,866**
Earnings per share of common stock—assuming dilution	**$ 4.12**	**$ 3.78**	**$ 3.29**	**$ 3.12**	**$ 3.00**	**$ 2.91**
Earnings per share of common stock—basic	**$ 4.25**	**$ 3.89**	**$ 3.38**	**$ 3.20**	**$ 3.09**	**$ 2.98**

The pro forma amounts that are disclosed in accordance with SFAS 123 reflect the portion of the estimated fair value of awards that was earned in 1999, 1998 and 1997.

The company used the Black-Scholes model to value the stock options that it granted in 1999, 1998 and 1997. The assumptions that the company used to estimate the fair value of the options and the weighted-average estimated fair value of an option on the date of grant are as follows:

	1999	1998	1997
Term (years)*	**5/6**	**5/6**	**5/6**
Volatility**	**27.3%**	**26.4%**	**23.0%**
Risk-free interest rate (zero coupon U.S. treasury note)	**6.6%**	**5.1%**	**6.2%**
Dividend yield	**0.4%**	**0.8%**	**1.0%**
Weighted-average fair value per option	**$ 46**	**$ 18**	**$ 13**

* Option term is 5 years for tax incentive options and 6 years for non-tax incentive options.

** To determine volatility, the company measured the daily price changes of the stock over the last 5- and 6-year periods for tax incentive options and non-tax incentive options, respectively.

W Retirement Plans

The company and its subsidiaries have defined benefit and defined contribution retirement plans that cover substantially all regular employees, and a supplemental retirement plan that covers certain executives.

The changes in the benefit obligations and plan assets of the U.S. and material non-U.S. defined benefit plans for 1999 and 1998 were as follows:

	U.S. Plan		Non-U.S. Plans	
(Dollars in millions)	1999	1998	1999	1998
Change in benefit obligation:				
Benefit obligation at beginning of year	$ 36,561	$ 33,161	$ 22,048	$ 18,846
Service cost	566	532	475	399
Interest cost	2,404	2,261	1,282	1,213
Plan participants' contributions	—	—	29	29
Acquisitions/divestitures, net	68	22	(47)	—
Amendments	75	—	—	2
Actuarial (gains) losses	(2,766)	2,729	522	1,331
Benefits paid from trust	(2,474)	(2,144)	(737)	(683)
Direct benefit payments	—	—	(257)	(254)
Foreign exchange impact	—	—	(1,552)	1,155
Plan curtailments/settlements/termination benefits	—	—	7	10
Benefit obligation at end of year	34,434	36,561	21,770	22,048
Change in plan assets:				
Fair value of plan assets at beginning of year	41,593	38,475	25,294	21,841
Actual return on plan assets	6,397	5,240	5,184	2,400
Employer contribution	—	—	143	452
Acquisitions/divestitures, net	68	22	(36)	—
Plan participants' contributions	—	—	29	29
Benefits paid from trust	(2,474)	(2,144)	(737)	(683)
Foreign exchange impact	—	—	(1,995)	1,283
Settlements	—	—	(39)	(28)
Fair value of plan assets at end of year	45,584	41,593	27,843	25,294
Fair value of plan assets in excess of benefit obligation	11,150	5,032	6,073	3,246
Unrecognized net actuarial gains	(7,003)	(1,289)	(4,597)	(2,342)
Unrecognized prior service costs	269	174	140	181
Unrecognized net transition asset	(632)	(771)	(72)	(78)
Adjustment to recognize minimum liability	—	—	(84)	(87)
Net prepaid pension asset recognized in the Consolidated Statement of Financial Position	$ 3,784	$ 3,146	$ 1,460	$ 920

U.S. Plan

U.S. regular, full-time and part-time employees are covered by a noncontributory plan that is funded by company contributions to an irrevocable trust fund, which is held for the sole benefit of participants.

Effective July 1, 1999, IBM converted to a new formula, the Personal Pension Account (PPA), for determining pension benefits for most of its employees. Under the PPA, retirement benefits are credited to each employee's cash balance account monthly based on a percentage of the employee's pensionable compensation. Employees who were retirement eligible or within five years of retirement eligibility with at least one year of service, or who were at least forty years of age with at least ten years of service as of June 30, 1999, could elect to participate in the PPA or to have their service and earnings credit accrue under the preexisting benefit formula. Benefits become vested on the completion of five years of service under either formula.

The number of individuals who were receiving benefits at December 31, 1999 and 1998, was 124,175 and 116,685, respectively.

Non-U.S. Plans

Most subsidiaries and branches outside the U.S. have retirement plans that cover substantially all regular employees, under which the company deposits funds under various fiduciary-type arrangements, purchases annuities under group contracts or provides reserves. Retirement benefits are based on years of service and the employee's compensation, generally during a fixed number of years immediately before retirement. The ranges of assumptions that are used for the non-U.S. plans reflect the different economic environments within various countries.

U.S. Supplemental Executive Retention Plan

The company also has a non-qualified U.S. Supplemental Executive Retention Plan (SERP). The SERP, which is unfunded, provides defined pension benefits outside the IBM Retirement Plan to eligible executives based on average earnings, years of service and age at retirement. Effective July 1, 1999, the company adopted the Supplemental Executive Retention Plan (which replaces the previous Supplemental Executive Retirement Plan). Some participants of the pre-existing SERP still will be eligible for benefits under that plan, but will not be eligible for the new plan. At December 31, 1999 and 1998, the projected benefit obligation was $149 million and $178 million, respectively, and the amounts included in the Consolidated Statement of Financial Position were pension liabilities of $109 million and $81 million, respectively.

WEIGHTED-AVERAGE ASSUMPTIONS AS OF DECEMBER 31:

	U.S. Plan			Non-U.S. Plans		
	1999	1998	1997	1999	1998	1997
Discount rate	7.75%	6.5%	7.0%	4.5–7.3%	4.5–7.5%	4.5–7.5%
Expected return on plan assets	9.5%	9.5%	9.5%	6.0–10.5%	6.5–10.0%	6.0–9.5%
Rate of compensation increase	6.0%	5.0%	5.0%	2.6–6.1%	2.7–6.1%	2.6–6.1%

COST OF THE DEFINED BENEFIT PLANS:

	U.S. Plan			Non-U.S. Plans		
(Dollars in millions)	1999	1998	1997	1999	1998	1997
Service cost	$ 566	$ 532	$ 397	$ 475	$ 399	$ 366
Interest cost	2,404	2,261	2,215	1,282	1,213	1,182
Expected return on plan assets	(3,463)	(3,123)	(2,907)	(1,937)	(1,739)	(1,457)
Net amortization of unrecognized net actuarial gains, net transition asset and prior service costs	(145)	(124)	(125)	42	21	15
Settlement (gains)/losses	—	—	—	(23)	10	(63)
Net periodic pension (benefit) cost—U.S. Plan and material non-U.S. Plans	$ (638)	$ (454)	$ (420)	$ (161)	$ (96)	$ 43
Total net periodic pension (benefit) cost for all non-U.S. Plans				$ (124)	$ (42)	$ 50
Cost of defined contribution plans	$ 275	$ 258	$ 236	$ 131	$ 90	$ 64
Cost of complementary defined benefits	$ 38	$ 34	$ 33			
Cost of U.S. Supplemental Executive Retention Plan	$ 30	$ 25	$ 20			

Net periodic pension cost is determined using the Projected Unit Credit actuarial method.

The effects on the company's results of operations and financial position from most changes in the estimates and assumptions used to compute pension and prepaid pension assets or pension liability is mitigated by the delayed recognition provisions of SFAS No. 87, "Employers' Accounting for Pensions." The effects of settlement gains, curtailment losses and early terminations are recognized immediately. The 1.25 percent increase in the discount rate in 1999 resulted in an actuarial gain of $5,003 million for the U.S. plan. The 0.5 percent decrease in the discount rate in 1998 resulted in an actuarial loss of $2,144 million for the U.S. plan.

It is the company's practice to fund amounts for pensions sufficient to meet the minimum requirements set forth in applicable employee benefits laws and local tax laws. From time to time, the company contributes additional amounts as it deems appropriate. Liabilities for amounts in excess of these funding levels are accrued and reported in the company's Consolidated Statement of Financial Position. The assets of the various plans include corporate equities, government securities, corporate debt securities and real estate.

At December 31, 1999, the material non-U.S. defined benefit plans in which the plan assets exceeded the benefit obligation had obligations of $21,168 million and assets of $27,400 million. The material non-U.S. defined benefit plans in which the benefit obligation exceeded the fair value of plan assets had obligations of $602 million and assets of $443 million.

At December 31, 1998, the material non-U.S. defined benefit plans in which the plan assets exceeded the benefit obligation had obligations of $18,217 million and assets of $21,736 million. The material non-U.S. defined benefit plans in which the benefit obligation exceeded the fair value of plan assets had obligations of $3,831 million and assets of $3,558 million.

X Nonpension Postretirement Benefits

The company and its U.S. subsidiaries have defined benefit postretirement plans that provide medical, dental and life insurance for retirees and eligible dependents. Effective July 1, 1999, IBM established a "Future Health Account (FHA) Plan" for employees who are more than five years away from retirement eligibility. Employees who are eligible to retire within five years retained the benefits under the company's preexisting retiree health benefits plan. Under either the FHA or the preexisting plan, there is a maximum cost to the company for retiree health care. For employees who retired before January 1, 1992, that maximum will become effective in the year 2001. For all other employees, the maximum is effective on retirement.

The changes in the benefit obligation and plan assets of the U.S. plans for 1999 and 1998 are as follows:

(Dollars in millions)	1999	1998
Change in benefit obligation:		
Benefit obligation at beginning of year	$ 6,457	$ 6,384
Service cost	48	42
Interest cost	424	427
Amendments	(127)	(26)
Actuarial gains	(445)	(146)
Actuarial losses	371	272
Benefits paid from trust	(325)	(486)
Direct benefit payments	(225)	(10)
Benefit obligation at end of year	6,178	6,457
Change in plan assets:		
Fair value of plan assets at beginning of year	123	120
Actual (loss)/gain on plan assets	(18)	10
Employer contributions	325	479
Benefits paid, net of employee contributions	(325)	(486)
Fair value of plan assets at end of year	105	123
Benefit obligation in excess of plan assets	(6,073)	(6,334)
Unrecognized net actuarial losses	631	700
Unrecognized prior service costs	(948)	(965)
Accrued postretirement benefit liability recognized in the Consolidated Statement of Financial Position	$ (6,390)	$ (6,599)

The benefit obligation was determined by applying the terms of medical, dental and life insurance plans, including the effects of established maximums on covered costs, together with relevant actuarial assumptions. These actuarial assumptions include a projected healthcare cost trend rate of 6 percent.

The net periodic postretirement benefit cost for the U.S. plan for the years ended December 31 included the following components:

(Dollars in millions)	1999	1998	1997
Service cost	**$ 48**	$ 42	$ 32
Interest cost	**424**	427	455
Expected return on plan assets	**(6)**	(5)	(15)
Net amortization of unrecognized net actuarial losses and prior service costs	**(124)**	(133)	(119)
Net periodic postretirement benefit cost	**$ 342**	$ 331	$ 353

WEIGHTED-AVERAGE ASSUMPTIONS AS OF DECEMBER 31:

Discount rate	**7.75%**	6.5%	7.0%
Expected return on plan assets	**5.0%**	5.0%	5.0%

The plan assets primarily comprise short-term fixed income investments.

Certain of the company's non-U.S. subsidiaries have similar plans for retirees. However, most of the retirees outside the United States are covered by government-sponsored and administered programs. The obligations and cost of these programs are not significant to the company.

A one-percentage-point change in the assumed healthcare cost trend rate would have the following effects as of December 31, 1999:

(Dollars in millions)	One-Percentage-Point Increase	One-Percentage-Point Decrease
Effect on total service and interest cost	$ 7	$ (9)
Effect on postretirement benefit obligation	$ 95	$ (120)

Y Segment Information

IBM uses advanced information technology to provide customer solutions. The company operates primarily in a single industry using several segments that create value by offering a variety of solutions that include, either singularly or in some combination, technologies, systems, products, services, software and financing.

Organizationally, the company's major operations comprise three hardware product segments—Technology, Personal Systems and Server; a Global Services segment; a Software segment; a Global Financing segment and an Enterprise Investment segment. The segments are determined based on several factors, including customer base, homogeneity of products, technology and delivery channels.

The Technology segment produces peripheral equipment for use in general-purpose computer systems, including storage and networking devices, advanced function printers and display devices. In addition, the segment provides components such as semiconductors and HDDs for use in the company's products and for sale to original equipment manufacturers (OEM). Major business units include Storage Systems, Microelectronics, Printer Systems and Networking Hardware.

The Personal Systems segment produces general-purpose computer systems, including some system and consumer software, that operate applications for use by one user at a time (personal computer clients) or as servers, and display devices. Major brands include the Aptiva home PCs, IntelliStation workstations, Netfinity servers, PC 300 commercial desktop and ThinkPad mobile systems. These products are sold directly by the company and through reseller and retail channels.

The Server segment produces powerful multi-purpose computer systems that operate many open-network-based applications and are used simultaneously by multiple users. They perform high-volume transaction processing and serve data to personal systems and other end-user devices. The servers are the engines behind the bulk of electronic business transactions, including e-commerce. Brands include S/390, AS/400, RS/6000 and NUMA-Q. The segment's products are sold directly by the company and through business partner relationships.

The Global Services segment is the world's largest and most versatile information technology services provider, supporting computer hardware and software products and providing professional services to help customers of all sizes realize the full value of information technology. The segment provides value through three primary lines of business: Strategic Outsourcing Services; Business Innovation Services; and Integrated Technology Services. Strategic Outsourcing Services create business value through long-term strategic partnerships with customers by taking on responsibility for their processes and systems. Business Innovation Services (formerly Systems Integration and Consulting) provide business/industry consulting and end-to-end e-business implementation of offerings like Supply Chain Management, Customer Relationship Management, Enterprise Resource Planning and Business Intelligence.

Integrated Technology Services offer customers a single IT partner to manage multi-vendor IT systems' complexity in today's e-business environment including traditional offerings like Product Support, Business Recovery Services, Site and Connectivity Services, and Systems Management and Networking Services. Learning Services supports the three primary lines of business and help customers design, develop and deploy curricula to educate their employees. The Global Services segment is uniquely suited to integrate the full range of the company's and key industry participants' capabilities, including hardware, software, services and research.

The Software segment delivers operating systems for the company's servers and e-business enabling software (middleware) for IBM and non-IBM platforms. The company has reorganized its e-business offerings to align with key customer opportunity areas—transformation and integration, leveraging information, organizational effectiveness and managing technology. In addition to its own development, product and marketing effort, the segment supports more than 35,000 Independent Software Vendors to ensure that the company's software and hardware offerings are included in those partners' solutions.

The Global Financing segment is the world's largest provider of financing services for information technology (IT). The segment provides lease and loan financing that enables the company's customers to acquire complete IT and e-business solutions—hardware, software and services—provided by the company and its business partners. Special focus is placed on the financing needs of small and medium businesses, and the emerging financing needs of NetGen companies. Global Financing, as a reliable source of capital for the distribution channel, also provides the company's business partners with customized commercial financing for inventory, accounts receivable, term loans and acquisitions, helping them manage their cash flow, invest in infrastructure and grow their business.

The Enterprise Investments segment provides industry specific information technology solutions, supporting the hardware, software and services segments of the company. The segment develops unique products designed to meet specific marketplace requirements and to complement the company's overall portfolio of products.

Segment revenue and pre-tax income include transactions between the segments that are intended to reflect an arm's-length transfer at the best price available for comparable external customers. Specifically, semiconductors and disk drives are sourced internally from the Technology segment for use in the manufacture of the Server segment and Personal Systems segment products. Technology, hardware and software that are used by the Global Services segment in outsourcing engagements are sourced internally from the Technology, Server, Personal Systems and Software segments. For the internal use of information technology services, the Global Services segment recovers cost as well as a reasonable fee reflecting the arm's-length value of providing the services. The Global Services segment enters into arm's-length leases at prices equivalent to market rates with the Global Financing segment to facilitate the acquisition of equipment used in outsourcing engagements. All internal transaction prices are reviewed and reset annually if appropriate.

The company extensively uses shared-staff concepts to realize economies of scale and efficient use of resources. Thus, a significant amount of expense is shared by all of the company's segments. This expense represents sales coverage, marketing and support functions such as Accounting, Treasury, Procurement, Legal, Human Resources, and Billing and Collections. Where practical, shared expenses are allocated based on measurable drivers of expense; e.g., Human Resources costs are allocated on headcount while account coverage expenses are allocated on a revenue mix that reflects the company's sales commission plan. When a clear and measurable driver cannot be identified, shared expenses are allocated on a financial basis that is consistent with the company's management system; e.g., image advertising is allocated based on the gross profit of the segments. The unallocated corporate expenses arising from certain acquisitions, indirect infrastructure reductions, certain intellectual property income and currency exchange gains and losses are recorded in net income but are not allocated to the segments.

The following tables reflect the results of the segments consistent with the company's management system. These results are not necessarily a depiction that is in conformity with generally accepted accounting principles; e.g., employee retirement plan costs are developed using actuarial assumptions on a country-by-country basis and allocated to the segments on headcount. A different result could be arrived at for any segment using actuarial assumptions that are unique to the segment. Performance measurement is based on income before income taxes (pre-tax income). These results are used, in part, by management, both in evaluating the performance of, and in allocating resources to, each of the segments.

MANAGEMENT SYSTEM SEGMENT VIEW

(Dollars in millions)	Hardware: Technology	Hardware: Personal Systems	Hardware: Server	Global Services	Software	Global Financing	Enterprise Investments	Total Segments
1999:								
External revenue	$ 12,597	$ 15,290	$ 8,718	$ 32,172	$ 12,662	$ 3,219	$ 2,499	$ 87,157
Internal revenue	3,800	45	326	2,636	767	835	19	8,428
Total revenue	$ 16,397	$ 15,335	$ 9,044	$ 34,808	$ 13,429	$ 4,054	$ 2,518	$ 95,585
Pre-tax income	$ 764	$ (557)	$ 1,590	$ 4,528	$ 2,830	$ 1,286	$ (324)	$ 10,117
Revenue year-to-year change	(0.4)%	19.8%	(18.3)%	9.9%	6.5%	7.5%	(0.2)%	5.1%
Pre-tax income year-to-year change	(20.0)%	43.9%	(44.1)%	20.5%	9.4%	10.4%	47.4%	4.3%
Pre-tax income margin	4.7%	(3.6)%	17.6%	13.0%	21.1%	31.7%	(12.9)%	10.6%
1998:								
External revenue	$ 11,890	$ 12,776	$ 10,624	$ 28,916	$ 11,863	$ 2,979	$ 2,468	$ 81,516
Internal revenue	4,578	29	445	2,747	749	792	56	9,396
Total revenue	$ 16,468	$ 12,805	$ 11,069	$ 31,663	$ 12,612	$ 3,771	$ 2,524	$ 90,912
Pre-tax income	$ 955	$ (992)	$ 2,842	$ 3,757	$ 2,588	$ 1,165	$ (616)	$ 9,699
Revenue year-to-year change	(4.4)%	(10.8)%	(6.0)%	13.5%	6.6%	5.8%	0.6%	2.0%
Pre-tax income year-to-year change	(47.1)%	(516.1)%	(1.9)%	30.0%	27.2%	3.0%	32.3%	0.1%
Pre-tax income margin	5.8%	(7.7)%	25.7%	11.9%	20.5%	30.9%	(24.4)%	10.7%
1997:								
External revenue	$ 11,083	$ 14,337	$ 11,286	$ 25,166	$ 11,164	$ 2,935	$ 2,438	$ 78,409
Internal revenue	6,147	20	491	2,737	671	628	70	10,764
Total revenue	$ 17,230	$ 14,357	$ 11,777	$ 27,903	$ 11,835	$ 3,563	$ 2,508	$ 89,173
Pre-tax income	$ 1,806	$ (161)	$ 2,896	$ 2,890	$ 2,034	$ 1,131	$ (910)	$ 9,686
Revenue year-to-year change	0.3%	3.3%	(6.9)%	12.6%	(1.5)%	(3.3)%	5.0%	3.0%
Pre-tax income year-to-year change	17.7%	(312.8)%	(12.1)%	14.3%	(17.5)%	(10.2)%	(17.4)%	(5.7)%
Pre-tax income margin	10.5%	(1.1)%	24.6%	10.4%	17.2%	31.7%	(36.3)%	10.9%

Reconciliations to IBM as Reported

(Dollars in millions)	1999	1998	1997
REVENUE:			
Total reportable segments	$ 95,585	$ 90,912	$ 89,173
Other revenues	391	151	99
Elimination of internal revenue	(8,428)	(9,396)	(10,764)
Total IBM Consolidated	$ 87,548	$ 81,667	$ 78,508

(Dollars in millions)	1999	1998	1997
PRE-TAX INCOME:			
Total reportable segments	$ 10,117	$ 9,699	$ 9,686
Elimination of internal transactions	(145)	(162)	(377)
Sale of Global Network	4,057	—	—
1999 actions	(2,205)	—	—
Unallocated corporate expenses	(67)	(497)	(282)
Total IBM Consolidated	$ 11,757	$ 9,040	$ 9,027

Immaterial Items

INVESTMENT IN EQUITY ALLIANCES AND EQUITY ALLIANCES GAINS/LOSSES

The investments in equity alliances and the resulting gains and losses from these investments that are attributable to the segments do not have a significant effect on the financial results of the segments.

Segment Assets and Other Items

The assets of the hardware segments primarily are inventory and plant, property and equipment. The software segment assets mainly are plant, property and equipment, and investment in deferred software development. The Global Services segment assets primarily are maintenance inventory and plant, property and equipment associated with its strategic outsourcing business.

To accomplish the efficient use of the company's space and equipment, it usually is necessary for several segments to share plant, property and equipment assets. Where assets are shared, landlord ownership of the assets is assigned to one segment and is not allocated to each user segment. This is consistent with the company's management system and is reflected accordingly in the schedule below. In those cases, there will not be a precise correlation between segment pre-tax income and segment assets.

Similarly, the depreciation amounts reported by each segment are based on the assigned landlord ownership and may not be consistent with the amounts that are included in the segments' pre-tax income. The amounts that are included in pre-tax income reflect occupancy charges from the landlord segment and are not specifically identified by the management reporting system.

Capital expenditures that are reported by each segment also are in line with the landlord ownership basis of asset assignment.

The Global Financing segment amounts below for interest income and interest expense reflect the interest income and interest expense associated with the financing business as well as the investment in cash and marketable securities. The remaining amounts of interest income and interest expense are not discretely identified to the other segments, but are included as part of an indirect expense allocation.

MANAGEMENT SYSTEM SEGMENT VIEW

	Hardware							
(Dollars in millions)	Technology	Personal Systems	Server	Global Services	Software	Global Financing	Enterprise Investments	Total Segments
1999:								
Assets	$ 10,409	$ 1,372	$ 2,846	$ 2,060	$ 2,527	$ 39,686	$ 408	$ 59,308
Depreciation/amortization	2,142	127	191	367	576	2,976	15	6,394
Capital expenditures/ investment in software	1,834	172	312	249	656	3,217	12	6,452
Interest income	—	—	—	—	—	2,961	—	2,961
Interest expense	—	—	—	—	—	1,232	—	1,232
1998:								
Assets	$ 11,251	$ 1,464	$ 2,106	$ 2,236	$ 2,577	$ 40,109	$ 363	$ 60,106
Depreciation/amortization	1,207	121	178	322	681	2,768	15	5,292
Capital expenditures/ investment in software	2,044	156	288	358	424	3,438	19	6,727
Interest income	—	—	—	—	—	2,725	—	2,725
Interest expense	—	—	—	—	—	1,252	—	1,252
1997:								
Assets	$ 10,060	$ 1,629	$ 2,191	$ 1,914	$ 2,642	$ 35,444	$ 362	$ 54,242
Depreciation/amortization	1,092	112	167	315	1,132	2,170	10	4,998
Capital expenditures/ investment in software	2,028	195	235	361	515	3,615	16	6,965
Interest income	—	—	—	—	—	2,639	—	2,639
Interest expense	—	—	—	—	—	1,175	—	1,175