
SPECIAL REPORT

CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES

SCATTERGRAM ANALYSIS

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and Organizations (CRITO)**
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CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES: SECTOR GRAPHS

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IT Returns Project

**Center for Research on Information Technology
and Organizations (CRITO)**

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and
Department of Information and Computer Science
University of California, Irvine

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LIST OF SECTOR CHARTS

Manufacturing Sector

All Manufacturing	1
Aircraft and Parts	2
Chemicals	3
Computer Equipment	4
Electrical Equipment	5
Electronic Equipment	6
Food Processing	7
Industrial Machinery	8
Instrumentation	9
Lumber, Wood and Paper	10
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**CORPORATE PRODUCTIVITY AND LEVEL OF IT INVESTMENT:
A GUIDE TO INTERPRETING THE SCATTERGRAM**

Some corporations assess the payoff from IT investment by its correlation with corporate productivity. They plot the value for a measure of IT per corporate employee against the value for the total corporate revenue per corporate employee and compare this point with the values from other corporations. The expectation is that the higher the investment in IT, the higher the productivity of the corporation.

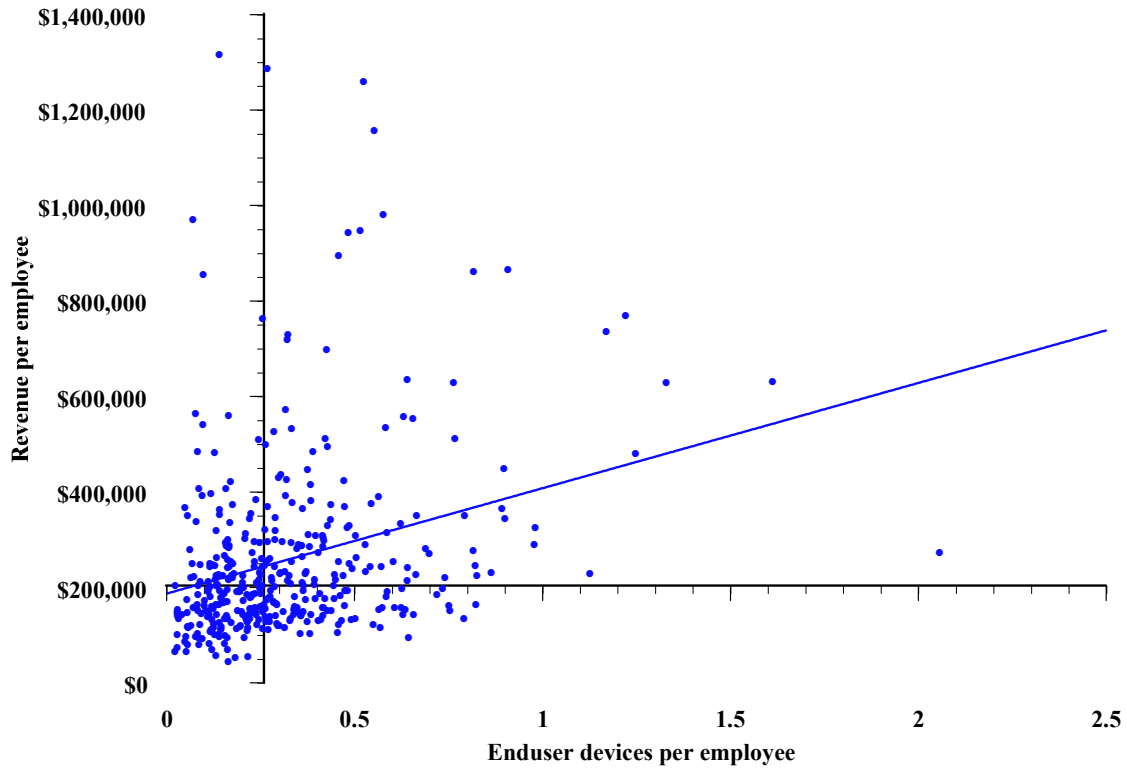
The graph on the front is an example of the type of graph that is produced. This guide is written to assist you in interpreting your firm's position on the graph. One caveat — corporation productivity can be measured in a variety of ways and factors other than IT investment can be associated with a given value. However, the analysis we've done over the years has consistently indicated that for many types of firms, IT investment is associated with corporate productivity.

To help in positioning your individual company, the intersection of the x-axis (PCs and terminals per corporate employee) and the y-axis (Total sales revenue per corporate employee) is the median value (50 percentile). The median total revenue per corporate employee indicates that 50% of all the firms earned more per employee and 50% of all the firms earned less per employee. Similarly, the median of PCs and terminals per corporate employee means that 50% of the firms had less enduser devices per employee and 50% had more. For simplicity, we refer to datapoints to the left of the vertical line as "low IT investment" and datapoints to the right of the vertical line as "high IT investment"; datapoints which are above the horizontal line are referred to as 'high corporate productivity' and datapoints which are below the horizontal line are referred to as 'low corporate productivity'. The graph can therefore be divided into the four quadrants shown below. Roughly each of the quadrants can be interpreted in the following way::

High corporate productivity and low IT investment	High corporate productivity and high IT investment
Low corporate productivity and low IT investment	Low corporate productivity and high IT investment

The diagonal line portrays the association between corporate productivity and IT investment. The slope indicates how correlated these two variables are. Correlation can vary from -1.00 to +1.00. The closer the correlation is to 1.0 or +1.00, the more associated the two variables are. A correlation of '0' means that the two variables are not associated. The square of the correlation indicates the amount of variance explained in corporate productivity by the measure of IT investment.

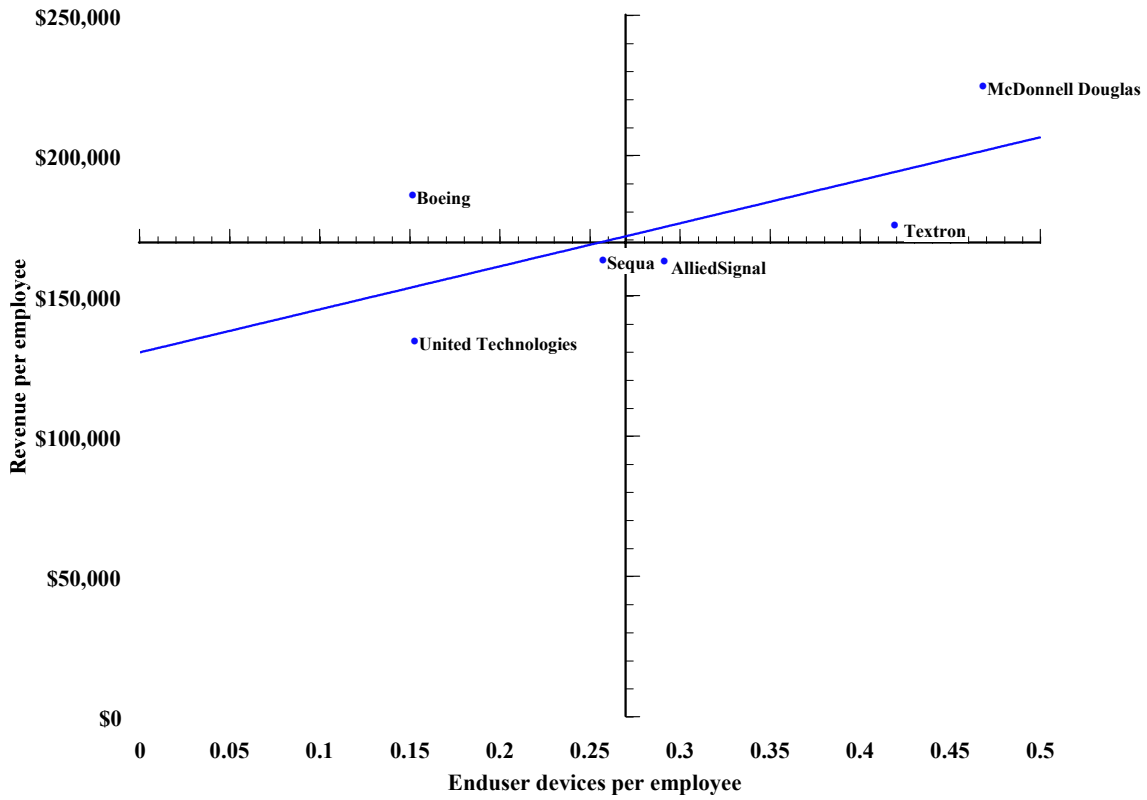
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG MANUFACTURING COMPANIES, 1996**



revenue per employee = \$148,125 + \$376,602(PCs & terminals per employee)

correlation = .43; percent variance explained = 18%

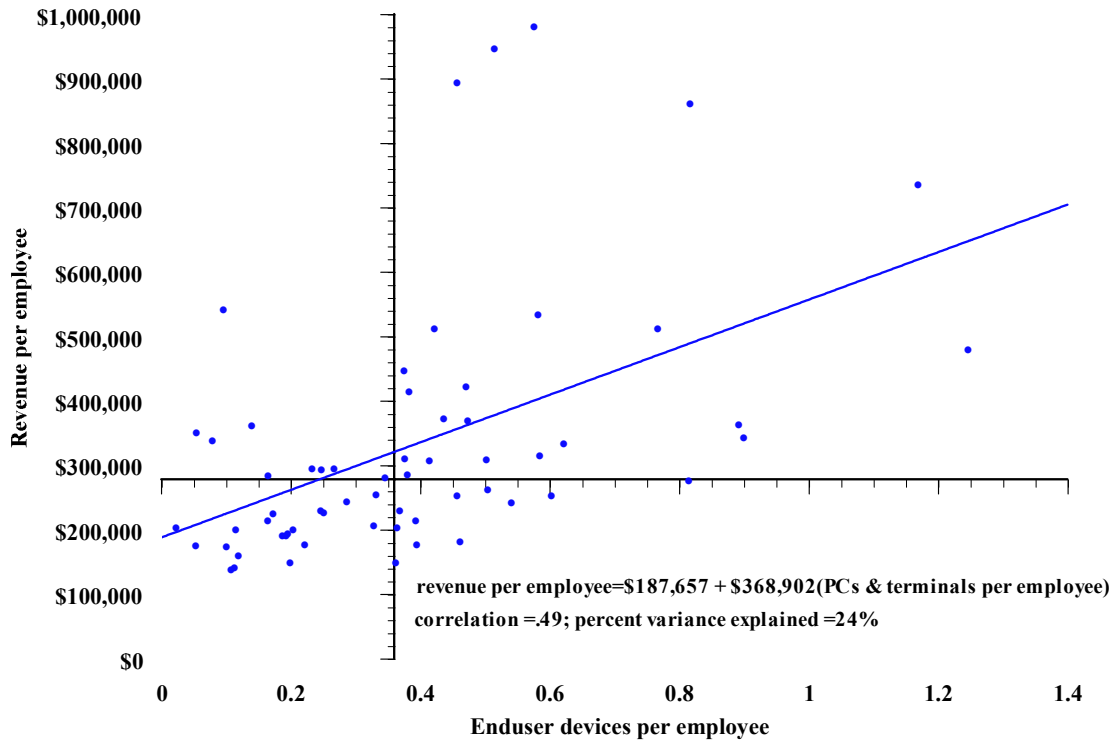
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG AIRCRAFT & PARTS COMPANIES, 1996**



revenue per employee = \$129,570 + \$153,416(PCs & terminals per employee)
 correlation = .49; percent variance explained = 24%

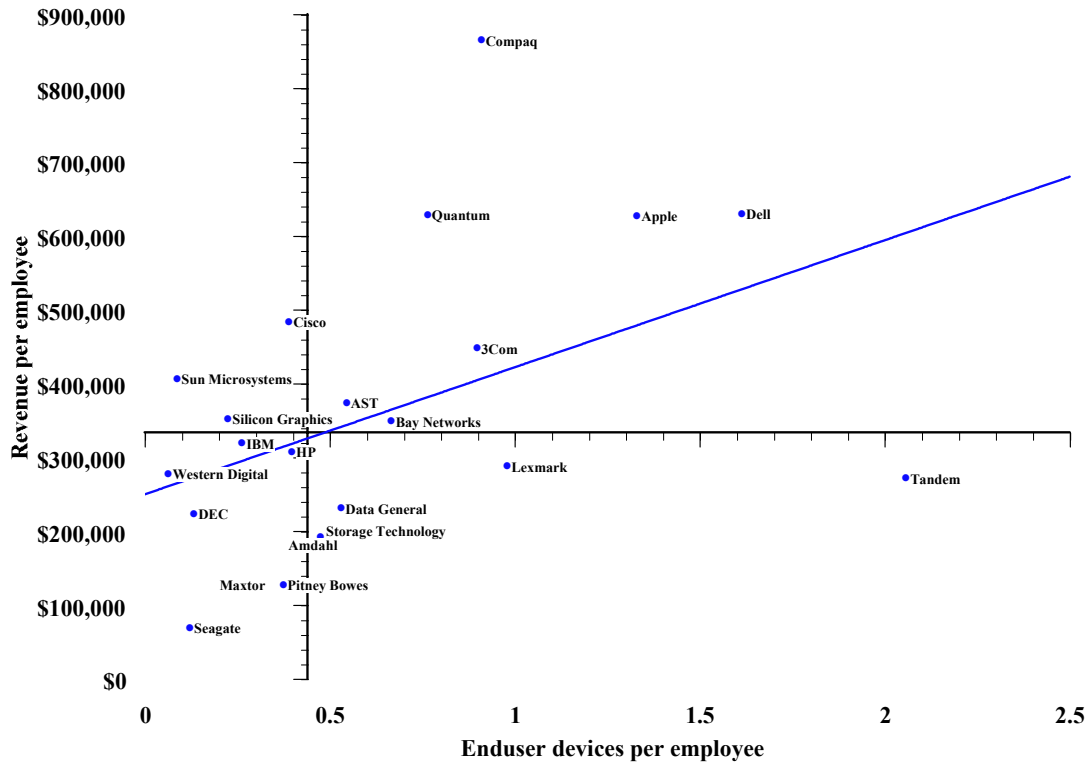
AlliedSignal
Boeing
McDonnell Douglas
Sequa
Textron
United Technologies

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG CHEMICAL COMPANIES, 1996**



- | | | | |
|-------------------------------------|------------------------------|---|-----------------------------|
| <i>A Schulman</i> | <i>Cytec Industries</i> | <i>Hercules</i> | <i>Procter & Gamble</i> |
| <i>Abbott Laboratories</i> | <i>Dial</i> | <i>IMC Global</i> | <i>RPM</i> |
| <i>Air Products & Chemicals</i> | <i>Dow Chemical</i> | <i>IVAX</i> | <i>Rohm & Haas</i> |
| <i>Albemarle Corporation</i> | <i>EI Du Pont De Nemours</i> | <i>International Flavors & Fragrances</i> | <i>Schering Plough</i> |
| <i>Alberto Culver</i> | <i>Eastman Chemical</i> | <i>Johnson & Johnson</i> | <i>Sherwin Williams</i> |
| <i>Allergan</i> | <i>Ecolab</i> | <i>Lubrizol</i> | <i>Sterling Chemicals</i> |
| <i>American Home Products</i> | <i>Eli Lilly</i> | <i>Mallinckrodt</i> | <i>Union Carbide</i> |
| <i>Amgen</i> | <i>Estee Lauder</i> | <i>Merck & Co.</i> | <i>Uniroyal Chemical</i> |
| <i>Arcadian</i> | <i>Ethyl</i> | <i>Monsanto</i> | <i>Valhi</i> |
| <i>Avon Products</i> | <i>FMC</i> | <i>Morton International</i> | <i>Warner Lambert</i> |
| <i>BF Goodrich</i> | <i>Ferro</i> | <i>Nalco Chemical</i> | <i>Wellman</i> |
| <i>Bristol Myers Squibb</i> | <i>GAF</i> | <i>Olin</i> | <i>Witco</i> |
| <i>CF Industries</i> | <i>Geon</i> | <i>PPG Industries</i> | |
| <i>Cabot</i> | <i>Georgia Gulf</i> | <i>Pfizer</i> | |
| <i>Chiron</i> | <i>Great Lakes Chemical</i> | <i>Pharmacia & Upjohn</i> | |
| <i>Clorox</i> | <i>HB Fuller</i> | <i>Praxair</i> | |
| <i>Colgate Palmolive</i> | <i>Helene Curtis</i> | | |

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG COMPUTER EQUIPMENT COMPANIES, 1996**



revenue per employee = \$249,717 + \$172,082(PCs & terminals per employee)

correlation = .46; percent variance explained = 21%

3 COM

AST Research

Amdahl

Apple Computer

Bay Networks

Cisco Systems

Compaq Computer

Data General

Dell Computer

Digital Equipment

Hewlett Packard

IBM

Lexmark International

Maxtor

Pitney Bowes

Quantum

Seagate Technology

Silicon Graphics

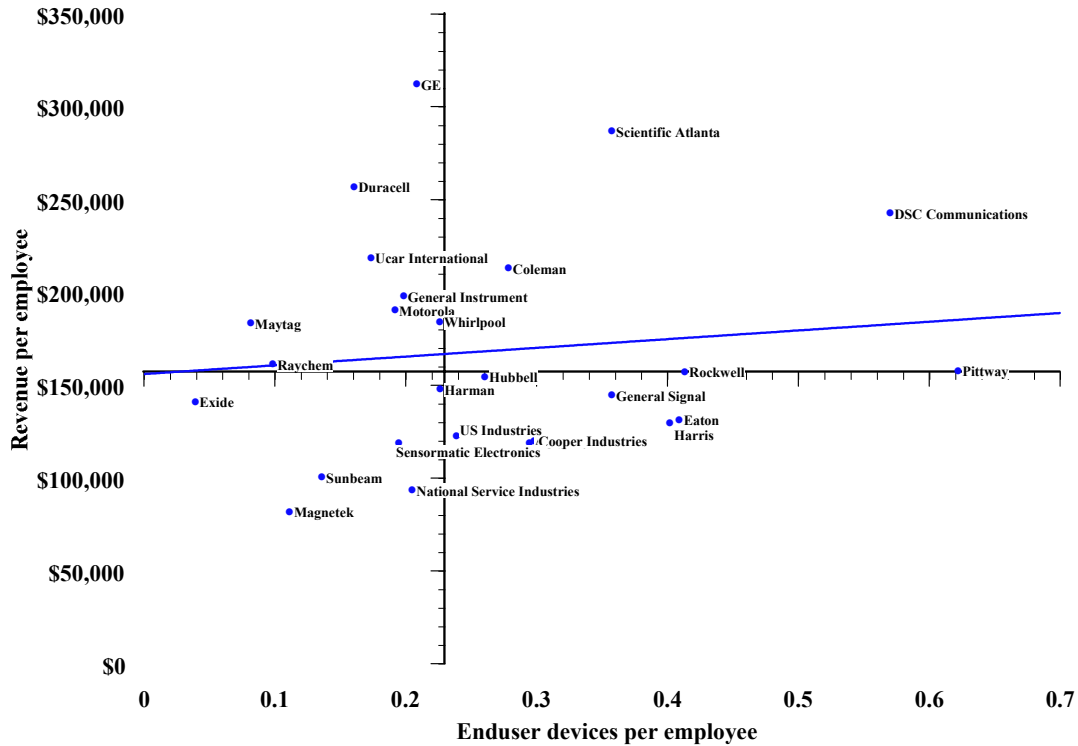
Storage Technology

Sun Microsystems

Tandem

Western Digital

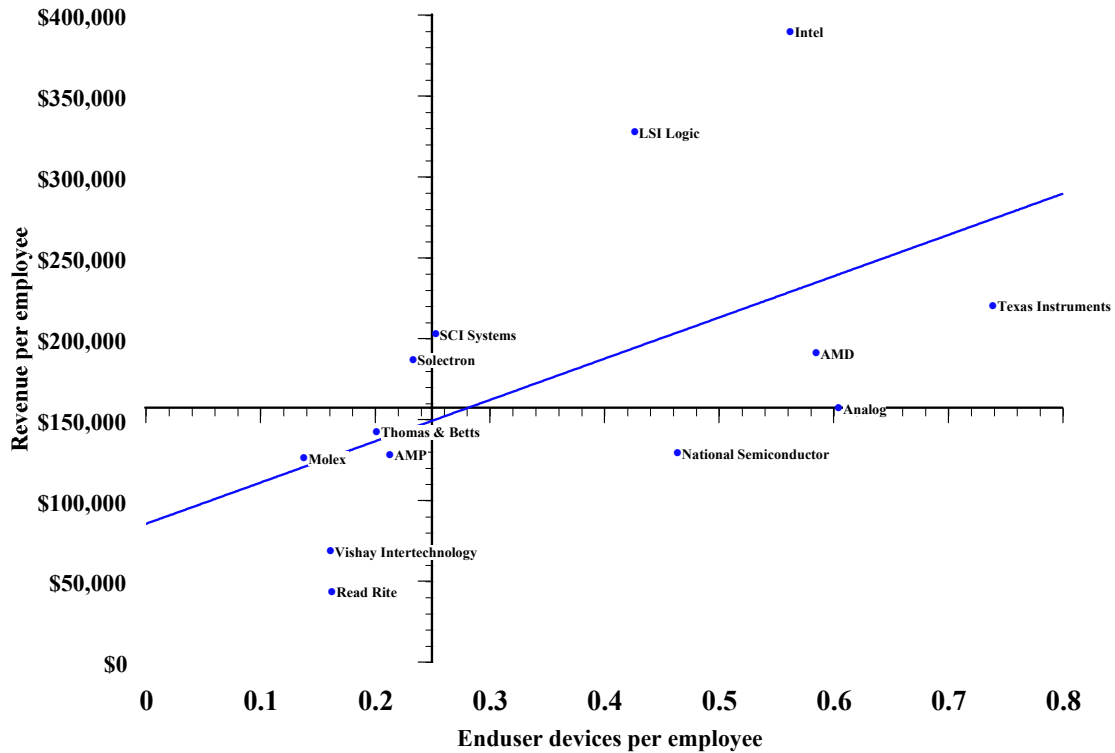
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG ELECTRICAL EQUIPMENT COMPANIES, 1996**



revenue per employee = \$155,682 + \$46,942(PCs & terminals per employee)
 correlation = .11; percent variance explained = 1%

- | | | |
|-------------------------------|------------------------------------|--------------------------------|
| <i>AO Smith</i> | <i>General Signal</i> | <i>Rockwell International</i> |
| <i>Coleman Company</i> | <i>Harman International</i> | <i>Scientific Atlanta</i> |
| <i>Cooper Industries</i> | <i>Harris</i> | <i>Sensormatic Electronics</i> |
| <i>DSC Communications</i> | <i>Hubbell</i> | <i>Sunbeam</i> |
| <i>Duracell International</i> | <i>Magnetek</i> | <i>US Industries</i> |
| <i>Eaton</i> | <i>Maytag</i> | <i>UCAR International</i> |
| <i>Exide</i> | <i>Motorola</i> | <i>Whirlpool</i> |
| <i>General Electric</i> | <i>National Service Industries</i> | |
| <i>General Instrument</i> | <i>Pittway</i> | |
| | <i>Raychem</i> | |

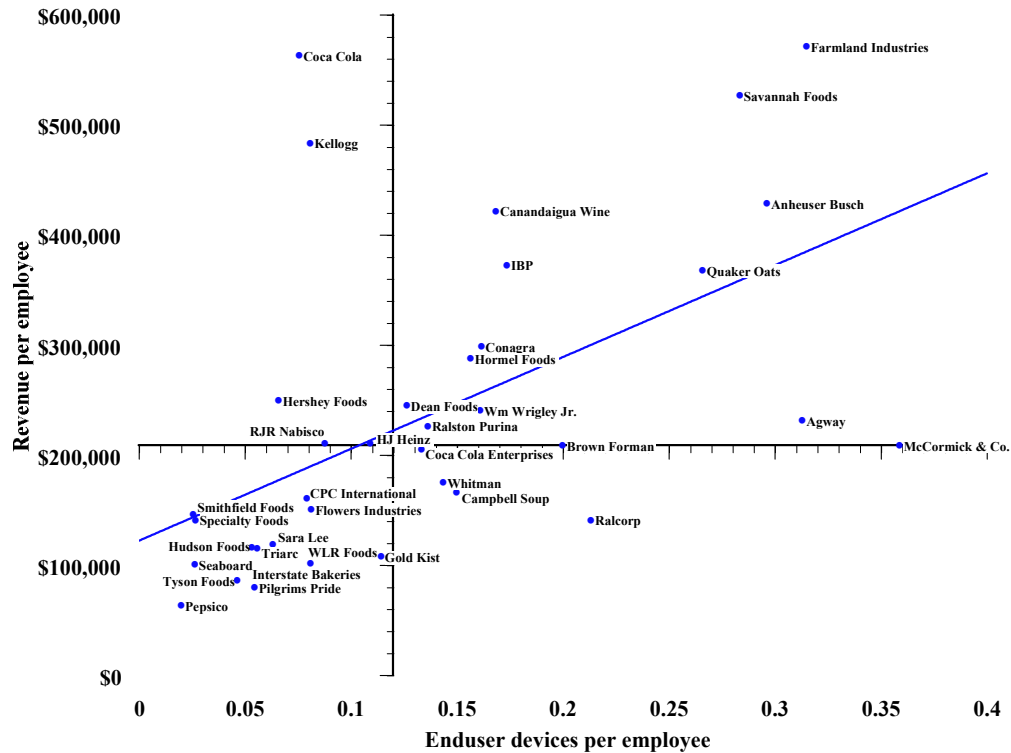
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG ELECTRONICS COMPANIES, 1996**



revenue per employee = \$85,021 + \$255,140(PCs & terminals per employee)
 correlation = .55; percent variance explained = 31%

- | | |
|-------------------------------|-------------------------------|
| <i>Amp</i> | <i>National Semiconductor</i> |
| <i>Advanced Micro Devices</i> | <i>Read Rite</i> |
| <i>Analog Devices</i> | <i>SCI Systems</i> |
| <i>Intel</i> | <i>Solectron</i> |
| <i>LSI Logic</i> | <i>Texas Instruments</i> |
| <i>Micron Technology</i> | <i>Thomas & Betts</i> |
| <i>Molex</i> | <i>Vishay Intertechnology</i> |

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG FOOD MANUFACTURING COMPANIES, 1996**

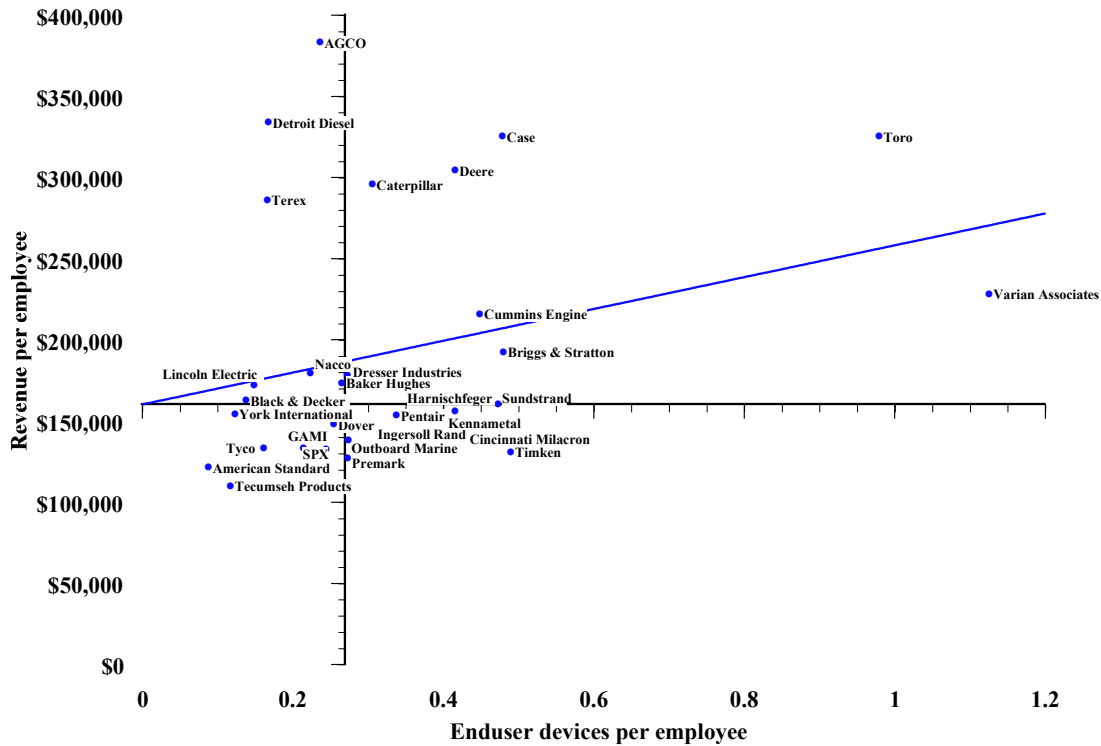


revenue per employee = \$121,822 + \$834,219(PCs & terminals per employee)

correlation = .54; percent variance explained = 30%

<i>Agway Inc.</i>	<i>Dean Foods</i>	<i>Interstate Bakeries</i>	<i>Sara Lee Corporation</i>
<i>Anheuser Busch</i>	<i>Farmland Industries</i>	<i>Kellogg Company</i>	<i>Savannah Foods & Industries</i>
<i>Brown Forman</i>	<i>Flowers Industries</i>	<i>McCormick & Company Inc.</i>	<i>Seaboard Corporation</i>
<i>CPC International Inc.</i>	<i>Gold Kist Inc.</i>	<i>Pepsico Inc.</i>	<i>Smithfield Foods</i>
<i>Campbell Soup</i>	<i>H. J. Heinz</i>	<i>Pilgrims Pride</i>	<i>Specialty Foods</i>
<i>Canandaigua Wine</i>	<i>Hershey Foods</i>	<i>Quaker Oats</i>	<i>Triarc Companies</i>
<i>Coca Cola Company</i>	<i>Hormel Foods</i>	<i>RJR Nabisco</i>	<i>Tyson Foods</i>
<i>Coca Cola Enterprises</i>	<i>Hudson Foods Inc.</i>	<i>Ralcorp</i>	<i>WLR Foods</i>
<i>Conagra Inc.</i>	<i>IBP Inc.</i>	<i>Ralston Purina</i>	<i>Whitman</i>
			<i>Wm Wrigley Jr.</i>

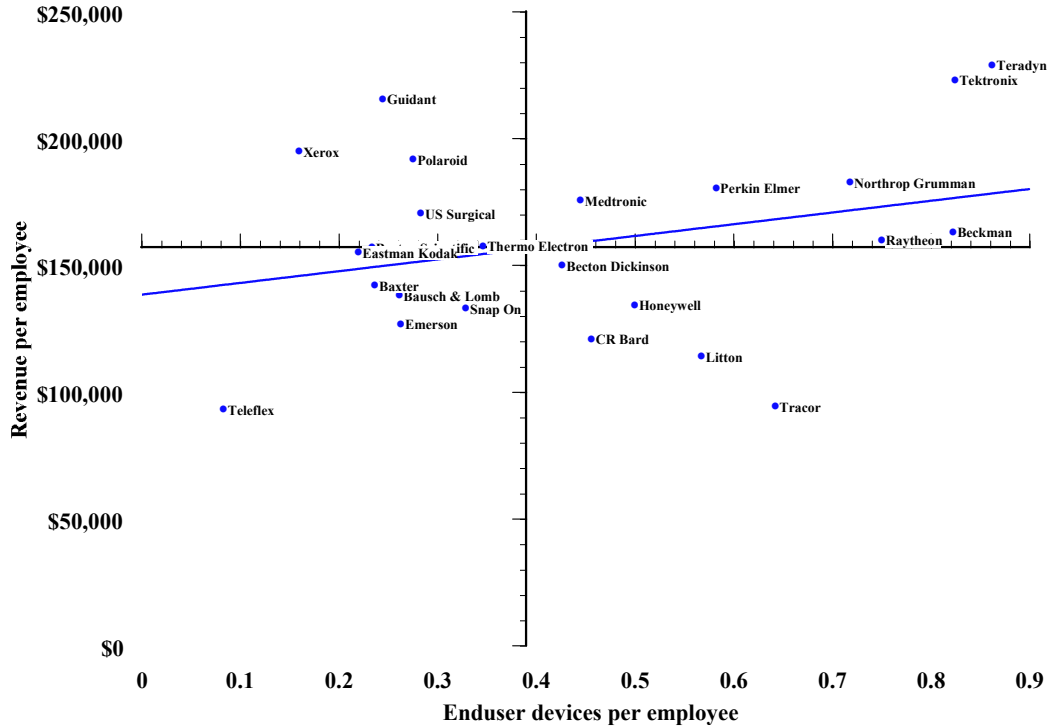
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG INDUSTRIAL MACHINERY COMPANIES, 1996**



revenue per employee = \$159,800 + \$98,008(PCs & terminals per employee)
 correlation = .29; percent variance explained = 8%

- | | | |
|------------------------------------|---------------------------------------|-------------------------------|
| <i>AGCO</i> | <i>Dover Corporation</i> | <i>SPX Corporation</i> |
| <i>American Standard Companies</i> | <i>Dresser Industries</i> | <i>Sundstrand Corporation</i> |
| <i>Baker Hughes</i> | <i>Great American Mgmt Investment</i> | <i>Tecumseh Products</i> |
| <i>Black & Decker</i> | <i>Harnischfeger Industries</i> | <i>Terex Corporation</i> |
| <i>Briggs & Stratton</i> | <i>Ingersoll Rand</i> | <i>Timken Company</i> |
| <i>Case Corporation</i> | <i>Kennametal</i> | <i>Toro Company</i> |
| <i>Caterpillar</i> | <i>Lincoln Electric</i> | <i>Tyco International</i> |
| <i>Cincinnati Milacron</i> | <i>NACCO Industries</i> | <i>Varian Associates</i> |
| <i>Cummins Engine</i> | <i>Outboard Marine Corporation</i> | <i>York International</i> |
| <i>Deere & Company</i> | <i>Pentair</i> | |
| <i>Detroit Diesel</i> | <i>Premark International</i> | |

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG INSTRUMENT AND MEASURING EQUIPMENT COMPANIES, 1996**



revenue per employee = \$138,243 + \$46,286(PCs & terminals per employee)

correlation = .29; percent variance explained = 9%

Search & Navigation Equipment

Litton Industries
Northrop Grumman
Raytheon
Tracor

Environmental Controls

Honeywell

Process Control Instruments

Emerson Electric

Instruments to Measure Electricity

Snap On
Tektronix
Teradyne

Analytical Instruments

Beckman Instruments
Perkin Elmer

Measuring & Controlling Devices

Thermo Electron

Surgical & Medical Instruments

Baxter International
Becton Dickinson & Company
Boston Scientific
CR Bard
Teleflex
United States Surgical

Electromedical Equipment

Guidant
Medtronic

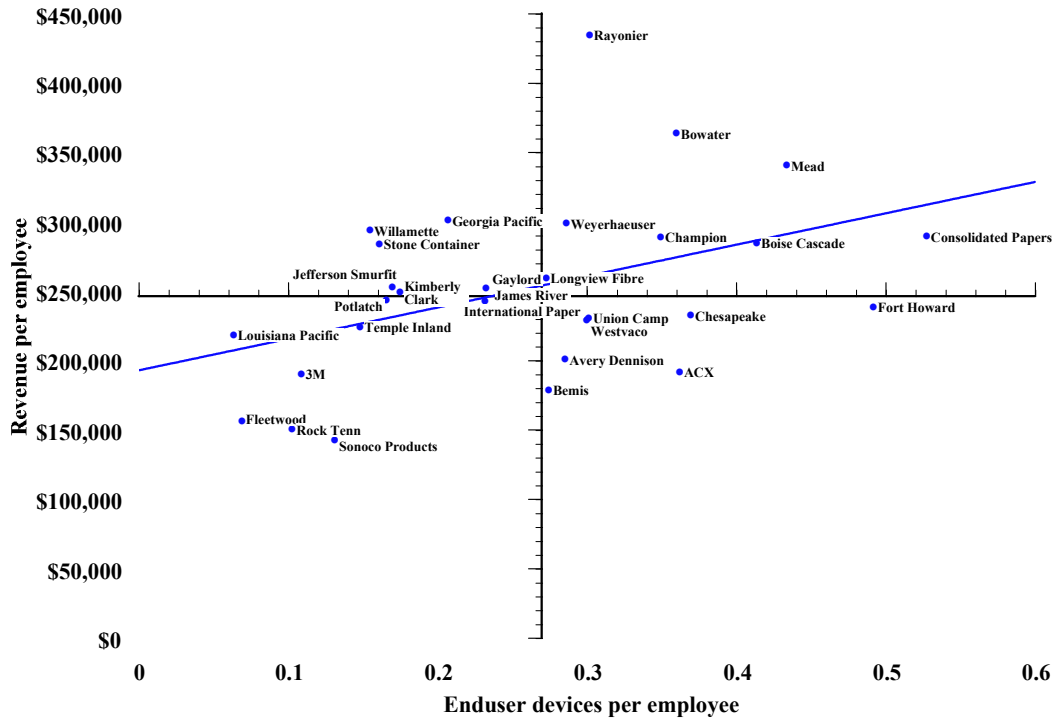
Ophthalmic Goods

Bausch & Lomb

Photographic Equipment

Eastman Kodak
Polaroid
Xerox

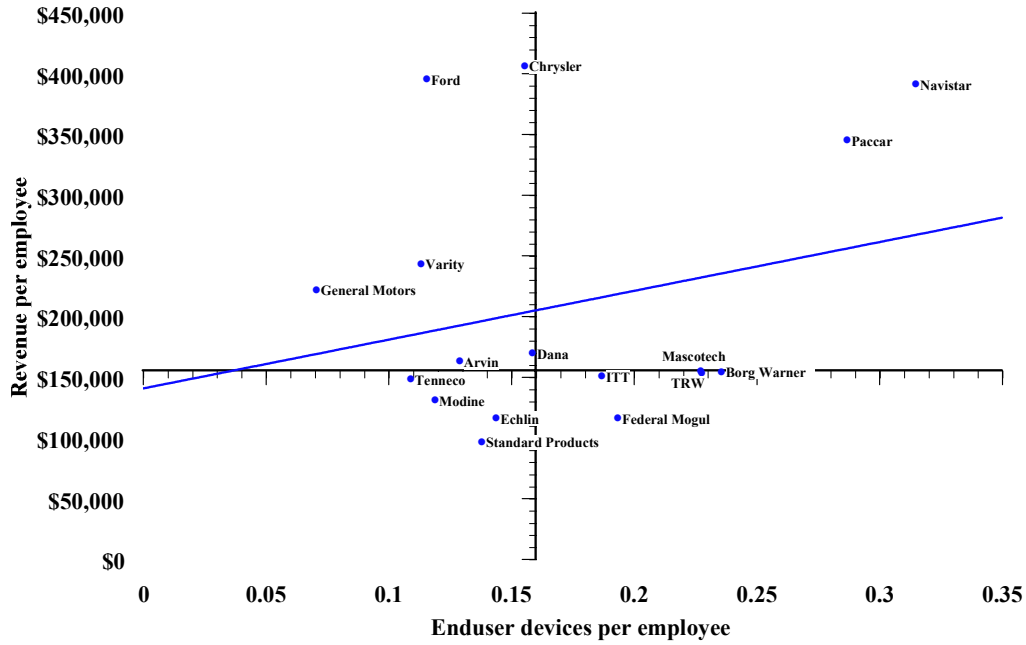
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG LUMBER, WOOD AND PAPER COMPANIES, 1996**



revenue per employee = \$192,604 + \$226,316(PCs & terminals per employee)
 correlation = .44; percent variance explained = 19%

- | | | |
|-----------------------------------|--------------------------------------|------------------------------|
| <i>ACX Technologies</i> | <i>Gaylord Container Corporation</i> | <i>Potlatch Corporation</i> |
| <i>Avery Dennison Corporation</i> | <i>Georgia Pacific</i> | <i>Rayonier</i> |
| <i>Bemis Company</i> | <i>International Paper</i> | <i>Rock Tenn</i> |
| <i>Boise Cascade</i> | <i>James River</i> | <i>Sonoco Products</i> |
| <i>Bowater</i> | <i>Jefferson Smurfit</i> | <i>Stone Container</i> |
| <i>Champion International</i> | <i>Kimberly Clark</i> | <i>Temple Inland</i> |
| <i>Chesapeake Corporation</i> | <i>Longview Fibre</i> | <i>Union Camp</i> |
| <i>Consolidated Papers</i> | <i>Louisiana Pacific</i> | <i>Westvaco</i> |
| <i>Fleetwood Enterprises</i> | <i>Mead Corporation</i> | <i>Weyerhaeuser Company</i> |
| <i>Fort Howard Corporation</i> | <i>3M Company</i> | <i>Willamette Industries</i> |

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG MOTOR VEHICLES & PARTS MANUFACTURING COMPANIES, 1996**



revenue per employee = \$170,196 + \$454,201(PCs & terminals per employee)
 correlation = .42; percent variance explained = 18%

Arvin Industries

Borg Warner Automotive

Chrysler

Dana

Echlin

Federal Mogul

Ford Motor

General Motors

ITT Industries

Mascotech

Modine Manufacturing

Navistar International

Paccar

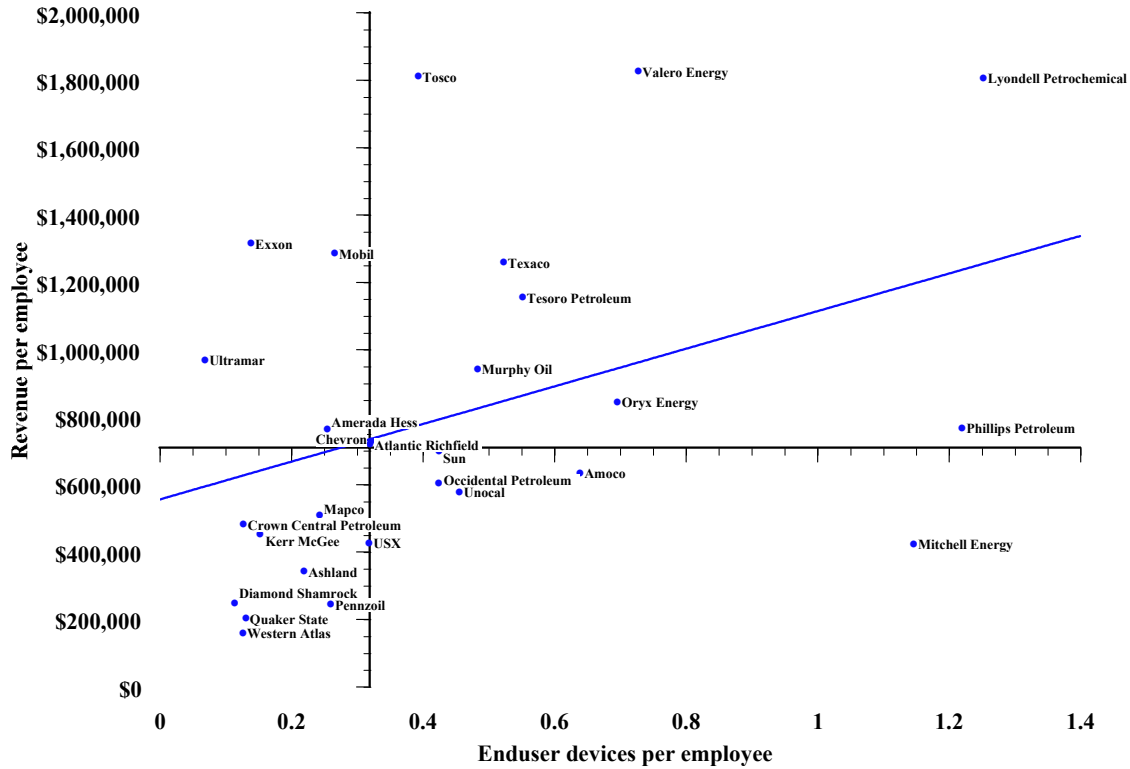
Standard Products

TRW

Tenneco

Varsity

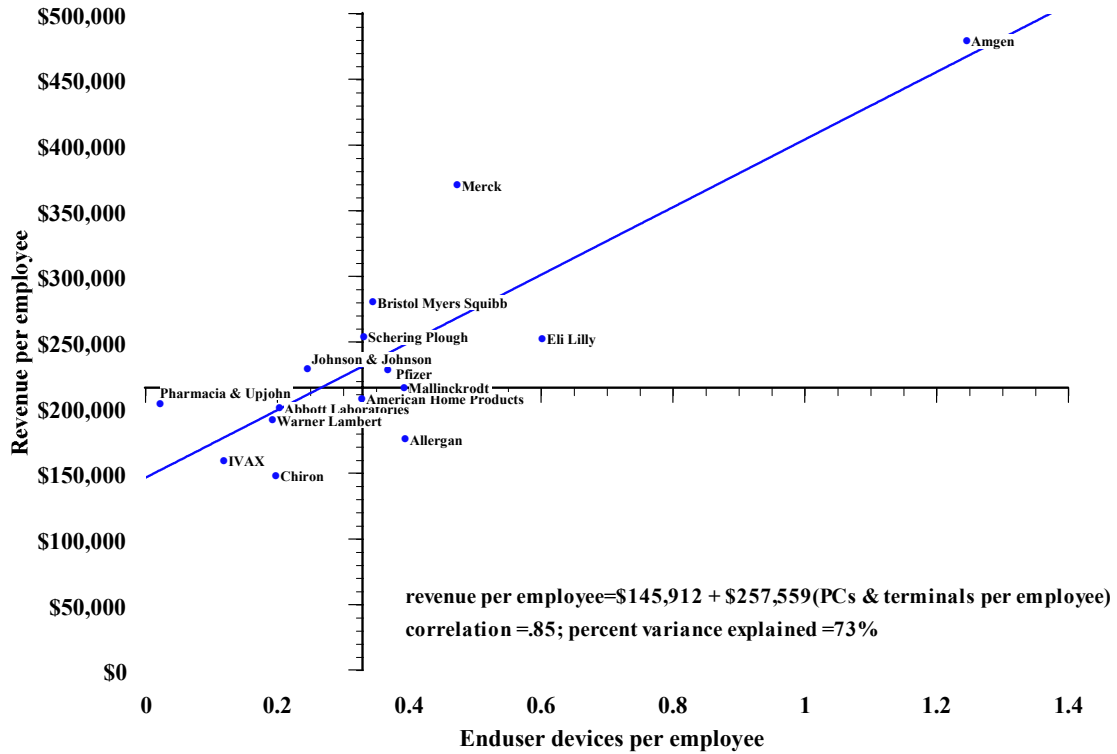
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG OIL, GAS & PETROLEUM COMPANIES, 1996**



revenue per employee=\$554,336 + \$558,373(PCs & terminals per employee)
correlation =.38; percent variance explained =14%

<i>Amerada Hess</i>	<i>Exxon</i>	<i>Occidental Petroleum</i>	<i>Texaco</i>
<i>Amoco</i>	<i>Kerr McGee</i>	<i>Oryx Energy</i>	<i>Tosco</i>
<i>Ashland</i>	<i>Lyondell Petrochemical</i>	<i>Pennzoil</i>	<i>USX</i>
<i>Atlantic Richfield</i>	<i>Mapco</i>	<i>Phillips Petroleum</i>	<i>Ultramar</i>
<i>Chevron</i>	<i>Mitchell Energy</i>	<i>Quaker State</i>	<i>Unocal</i>
<i>Crown Central Petroleum</i>	<i>Mobil</i>	<i>Sun</i>	<i>Valero Energy</i>
<i>Diamond Shamrock</i>	<i>Murphy Oil</i>	<i>Tesoro Petroleum</i>	<i>Western Atlas</i>

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG PHARMACEUTICAL COMPANIES, 1996**



Abbott Laboratories

Allergan

American Home Products

Amgen

Bristol Myers Squibb

Chiron

Eli Lilly

IVAX

Johnson & Johnson

Mallinckrodt

Merck & Co.

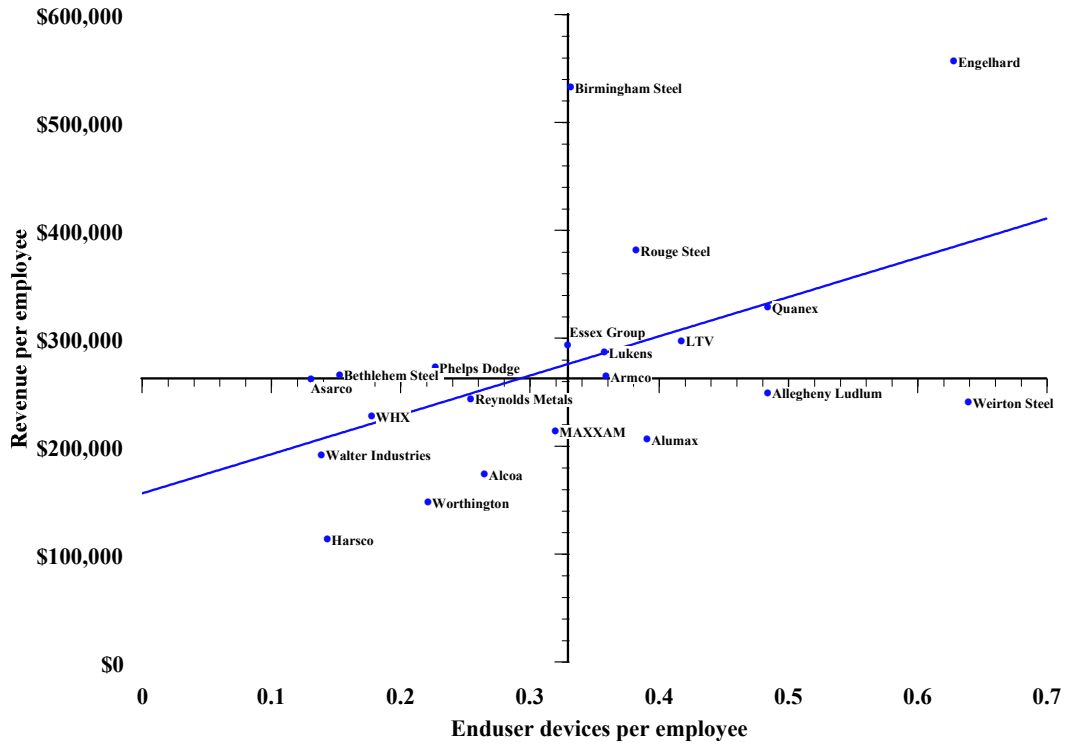
Pfizer

Pharmacia & Upjohn

Schering Plough

Warner Lambert

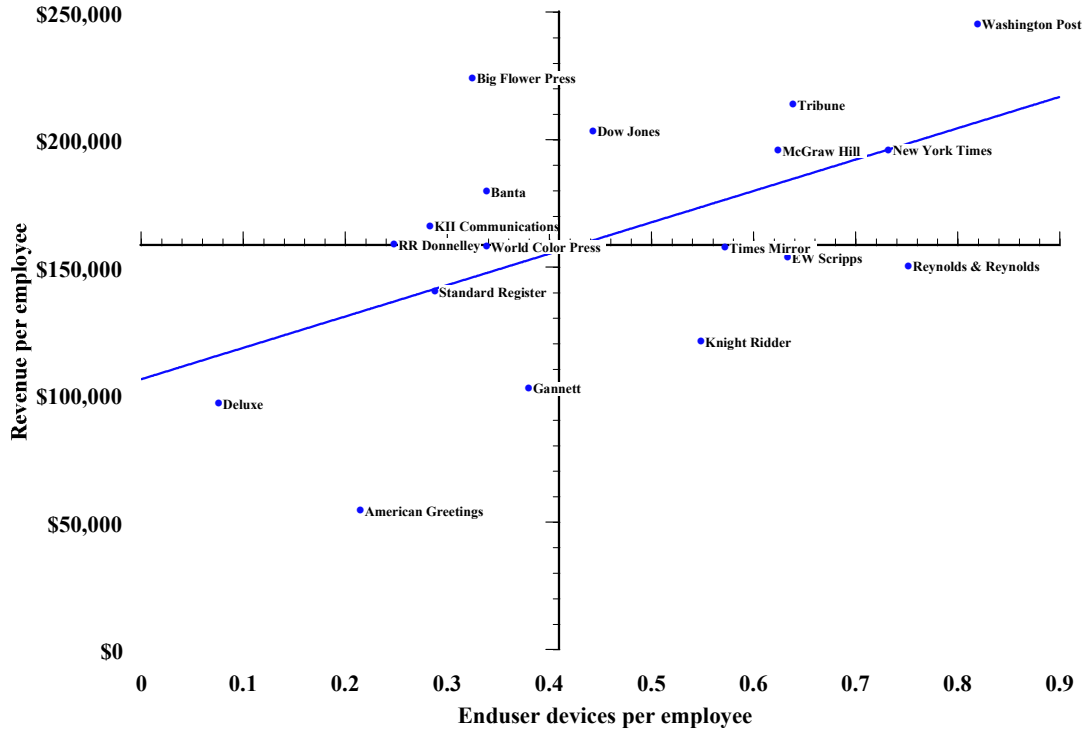
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG PRIMARY METAL COMPANIES, 1996**



revenue per employee = \$155,433 + \$363,978(PCs & terminals per employee)
 correlation = .50; percent variance explained = 25%

- | | |
|--------------------------|-------------------------------|
| <i>Alcoa</i> | <i>Lukens</i> |
| <i>Allegheeny Ludlum</i> | <i>MAXXAM</i> |
| <i>Alumax</i> | <i>Phelps Dodge</i> |
| <i>Armco</i> | <i>Quanex</i> |
| <i>Asarco</i> | <i>Reynolds Metals</i> |
| <i>Bethlehem Steel</i> | <i>Rouge Steel</i> |
| <i>Birmingham Steel</i> | <i>WHX Corporation</i> |
| <i>Engelhard</i> | <i>Walter Industries</i> |
| <i>Essex Group</i> | <i>Weirton Steel</i> |
| <i>Harsco</i> | <i>Worthington Industries</i> |
| <i>LTV Corporation</i> | |

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG PRINTING AND PUBLISHING COMPANIES, 1996**



revenue per employee = \$105,672 + \$123,098(PCs & terminals per employee)

correlation = .54; percent variance explained = 29%

American Greetings

Banta Corporation

Big Flower Press

Deluxe Corporation

Dow Jones & Company

E. W. Scripps Company

Gannett Company

KII Communications

Knight Ridder

McGraw Hill Companies

New York Times

R.R. Donnelley & Sons

Reynolds & Reynolds

Standard Register

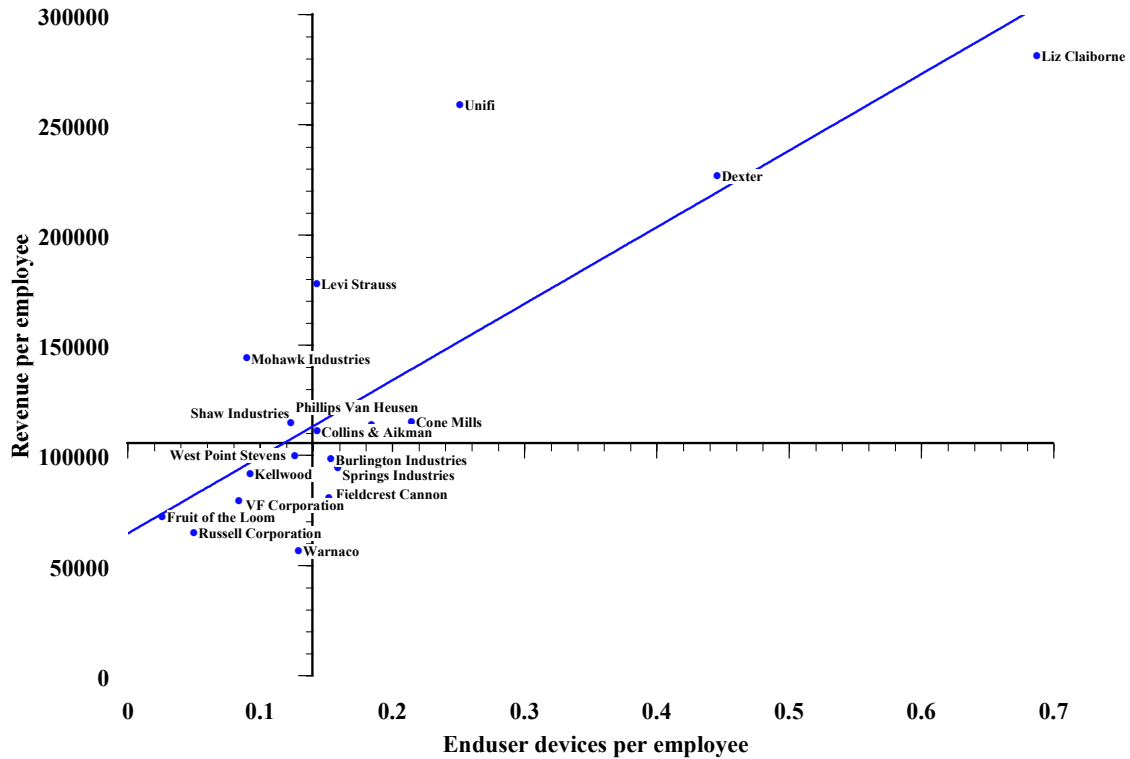
Times Mirror

Tribune Company

Washington Post

World Color Press

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG TEXTILE AND APPAREL COMPANIES, 1996**



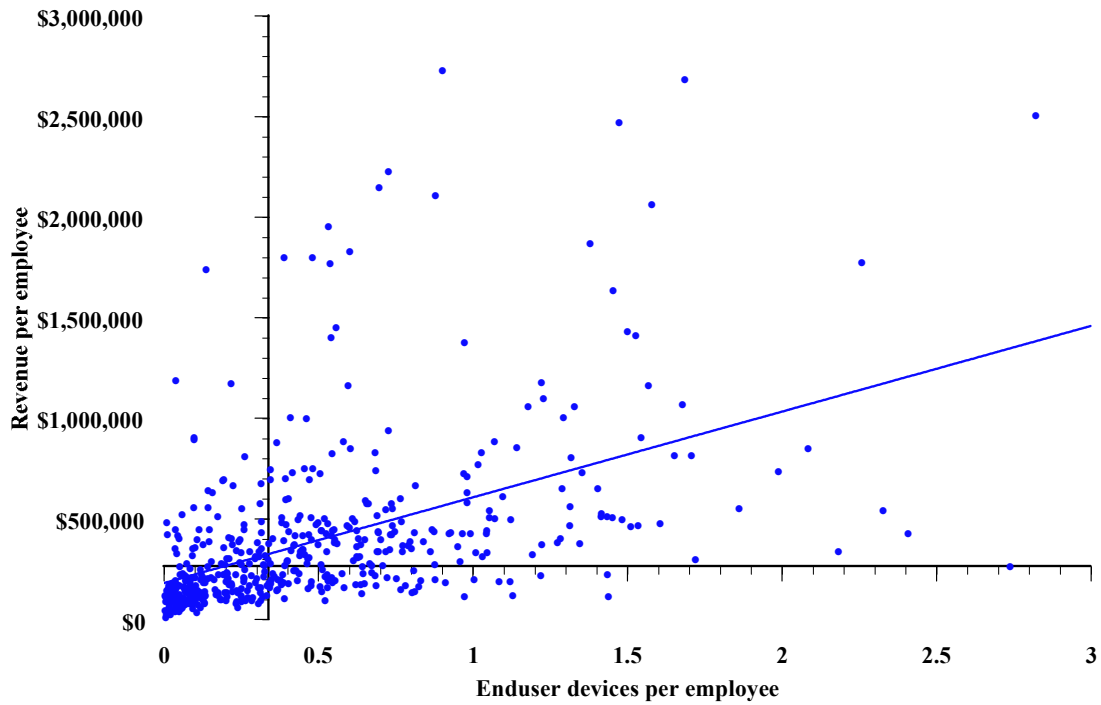
revenue per employee = \$64,074 + \$347,590(PCs & terminals per employee)
 correlation = .82; percent variance explained = 66%

Burlington Industries
Collins & Aikman
Cone Mills
Dexter
Fieldcrest Cannon
Fruit of the Loom

Kellwood
Levi Strauss
Liz Claiborne
Mohawk Industries
Phillips Van Heusen
Russell Corporation

Shaw Industries
Springs Industries
Unifi
VF Corporation
Warnaco Group
West Point Stevens

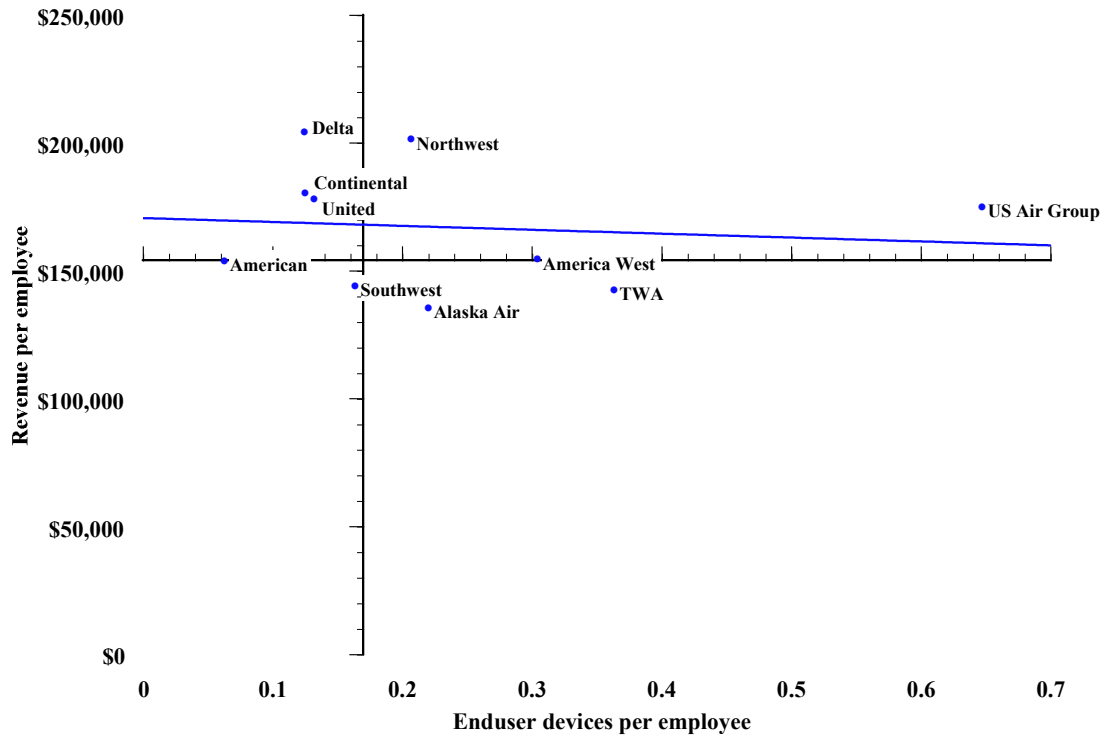
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG SERVICES COMPANIES, 1996**



revenue per employee = \$202,790 + \$398,303(PCs & terminals per employee)

correlation = .46; percent variance explained = 21%

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG AIRLINE COMPANIES, 1996**



revenue per employee=\$170,476- \$15,229(PCs & terminals per employee)

correlation =.10; percent variance explained =1%

Alaska Air Group

America West Airlines

American Airlines

Continental Airlines

Delta Airlines

Northwest Airlines

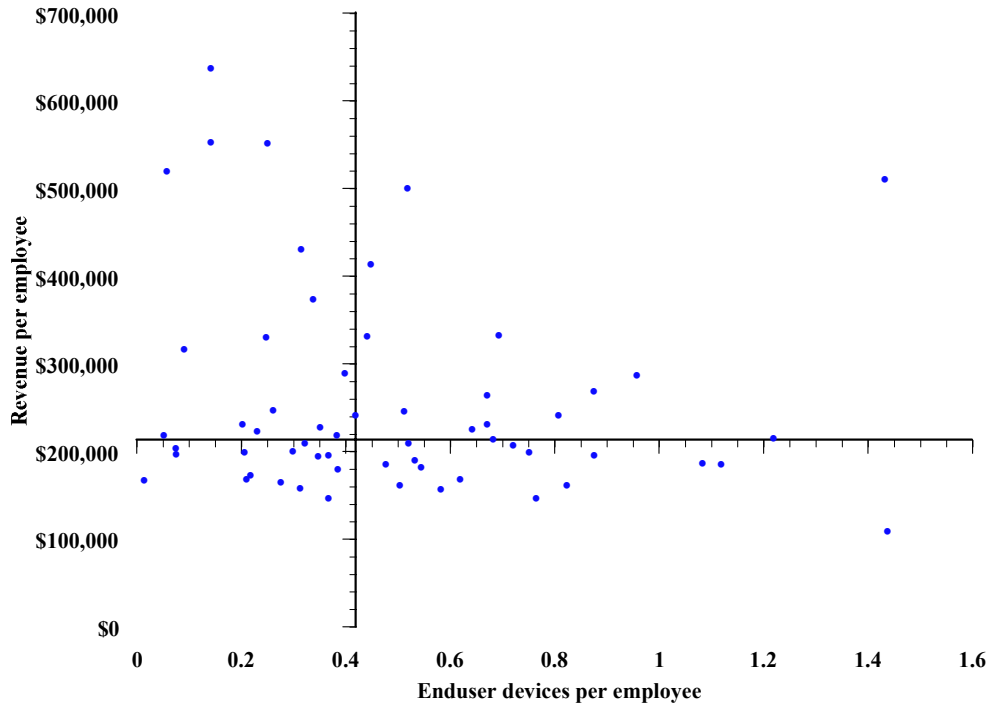
Southwest Airlines

Trans World Airlines

United Airlines

U S Air Group

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG BANKING INSTITUTIONS, 1996**



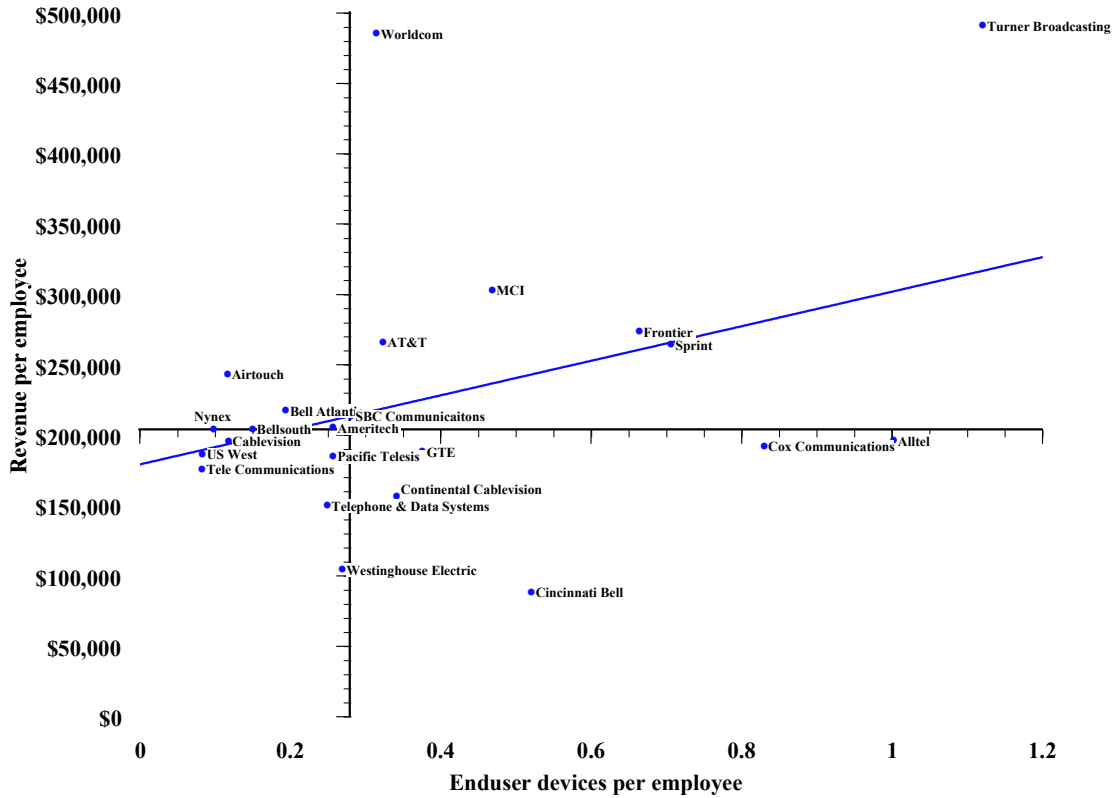
*Amsouth Bancorporation
Banc One
Bancorp Hawaii
Bank of Boston
Bank of New York
Bankamerica
Bankers Trust
Banponce
Barnett Banks
Baybanks
Boatmens Bancshares
Cal Fed
Charter One
Chase Manhattan
Citicorp*

*Comerica
Corestates Financial
Crestar Financial
Fifth Third Bancorp
First Bank System
First Chicago NBD
First Empire State
First of America
First Security
First Tennessee National
First Union
Firststar
Fleet Financial
Glendale Federal
Golden West Financial*

*Great Western Financial
HF Ahmanson
Huntington Banchares
JP Morgan
Keycorp
MBNA
Marshall & Ilsley
Mellon Bank
Mercantile Bancorporation
National City
Nationsbank
Northern Trust
Norwest
Old Kent Financial
PNC Bank*

*Regions Financial
Republic New York
Signet Banking
Southern National
Southtrust
Standard Federal
State Street
Suntrust Banks
UJB Financial
US Bancorp
Union Planters
Wachovia
Washington Mutual
Wells Fargo*

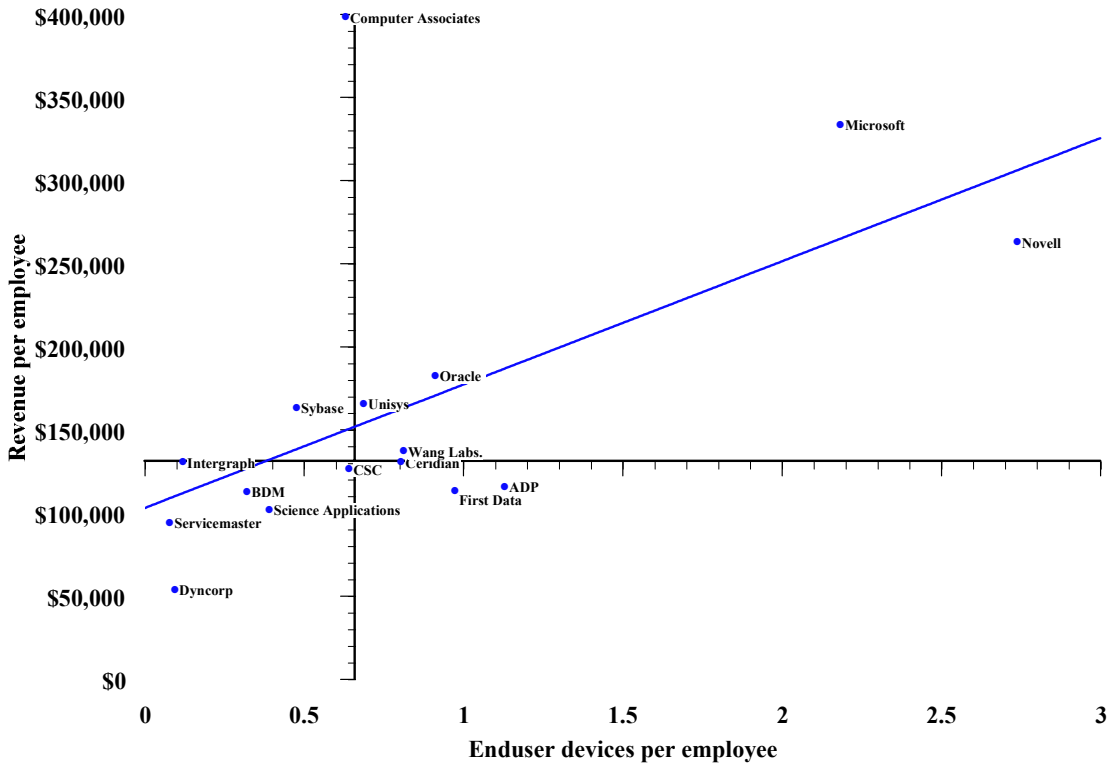
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG COMMUNICATIONS COMPANIES, 1996**



revenue per employee = \$178,734 + \$122,724(PCs & terminals per employee)
 correlation = .38; percent variance explained = 14%

- | | | |
|--------------------------------|--------------------------------|-------------------------------------|
| <i>AT&T</i> | <i>Continental Cablevision</i> | <i>Sprint</i> |
| <i>Airtouch Communications</i> | <i>Cox Communications</i> | <i>Tele Communications</i> |
| <i>Alltel</i> | <i>Frontier</i> | <i>Telephone & Data Systems</i> |
| <i>Ameritech</i> | <i>GTE</i> | <i>Turner Broadcasting System</i> |
| <i>Bell Atlantic</i> | <i>MCI Communications</i> | <i>US West</i> |
| <i>Bellsouth</i> | <i>Nynex</i> | <i>Westinghouse Electric</i> |
| <i>Cablevision Systems</i> | <i>Pacific Telesis</i> | <i>Worldcom</i> |
| <i>Cincinnati Bell</i> | <i>SBC Communications</i> | |

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG COMPUTING SERVICES COMPANIES, 1996**



revenue per employee = \$102,602 + \$74,173(PCs & terminals per employee)

correlation = .59; percent variance explained = 35%

Automatic Data Processing

BDM International

Ceridian

Computer Associates International

Computer Sciences Corporation

Dyncorp

EG&G

First Data Corporation

Intergraph

Microsoft

Novell

Oracle

Science Applications International

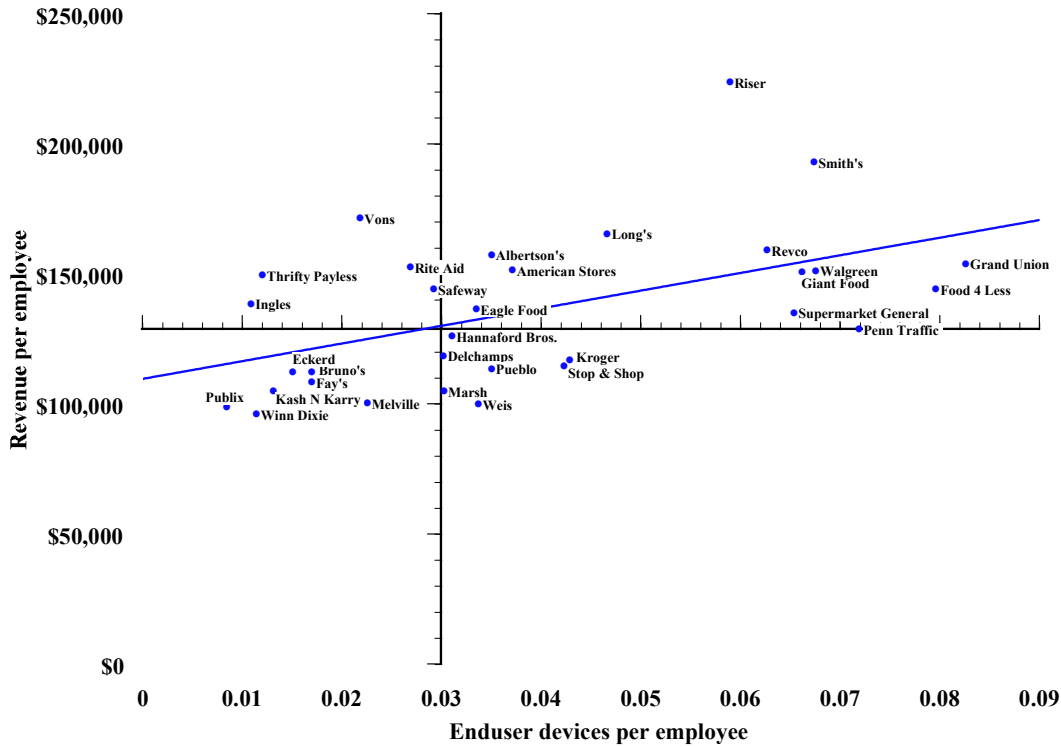
Servicemaster

Sybase

Unisys

Wang Laboratories

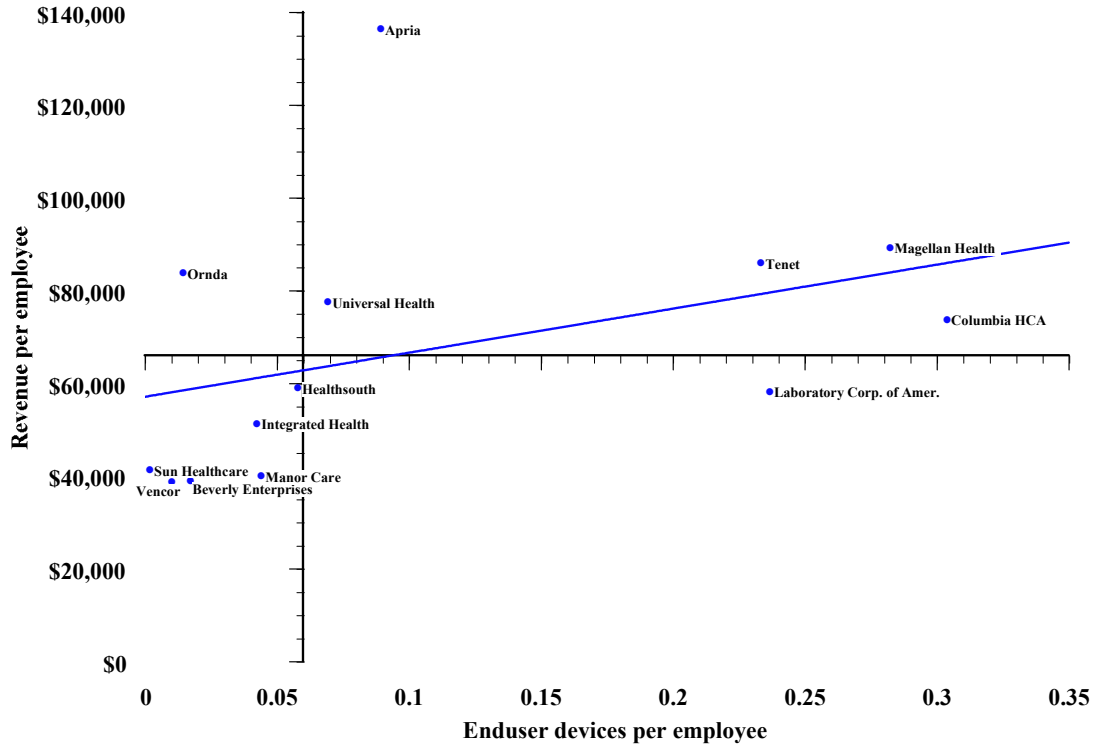
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG FOOD & DRUG STORES, 1996**



revenue per employee = \$92,934 + \$483,357(PCs & terminals per employee)
 correlation = .47; percent variance explained = 22%

- | | | | |
|---------------------------|---------------------------------|-----------------------------|----------------------------------|
| <i>Albertson's</i> | <i>Giant Food</i> | <i>Melville Corporation</i> | <i>Smith's Food & Drug</i> |
| <i>American Stores</i> | <i>Grand Union</i> | <i>Penn Traffic</i> | <i>Stop & Shop Companies</i> |
| <i>Bruno's</i> | <i>Hannaford Brothers</i> | <i>Publix Super Markets</i> | <i>Supermarket General</i> |
| <i>Delchamps</i> | <i>Ingles Markets</i> | <i>Pueblo International</i> | <i>Thrifty Payless</i> |
| <i>Eagle Food Centers</i> | <i>Kash N Karry Food Stores</i> | <i>Revco</i> | <i>Vons Companies</i> |
| <i>Eckerd</i> | <i>Kroger</i> | <i>Rite Aid</i> | <i>Walgreen</i> |
| <i>Fay's</i> | <i>Longs Drug Stores</i> | <i>Riser Foods</i> | <i>Weis Markets</i> |
| <i>Food 4 Less</i> | <i>Marsh Supermarkets</i> | <i>Safeway</i> | <i>Winn Dixie Stores</i> |

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG HEALTH SERVICES COMPANIES, 1996**



revenue per employee = \$57,466 + \$93,647(PCs & terminals per employee)
 correlation = .37; percent variance explained = 14%

Apria Healthcare Group

Beverly Enterprises

Columbia HCA Healthcare

Integrated Health Services

Laboratory Corporation of America

Magellan Health Services

Manor Care

Ornda Healthcorp

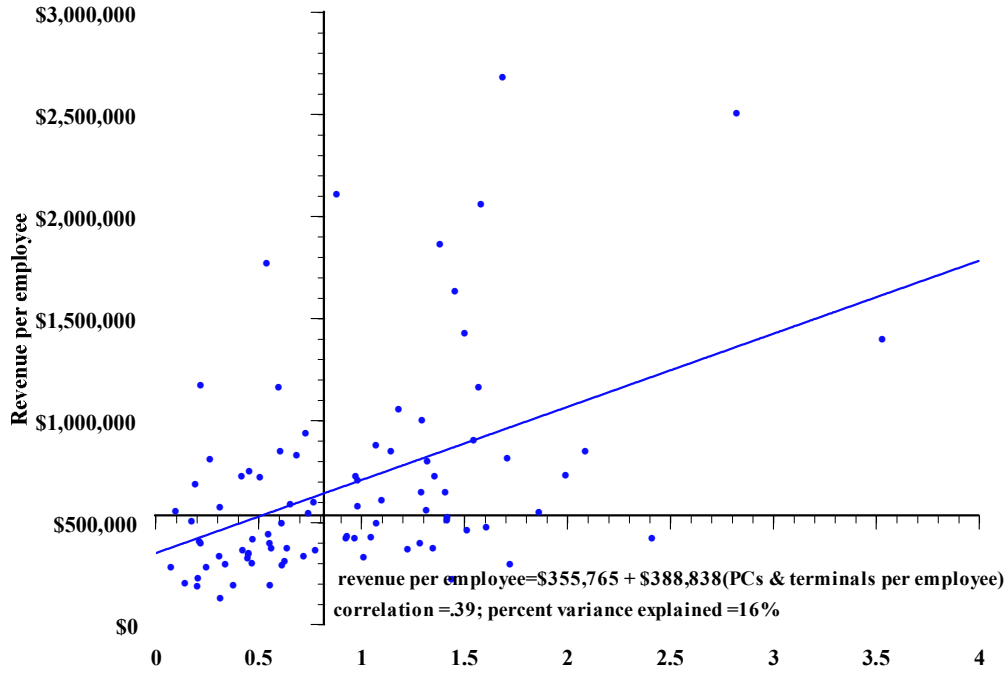
Sun Healthcare Group

Tenet Healthcare

Universal Health Services

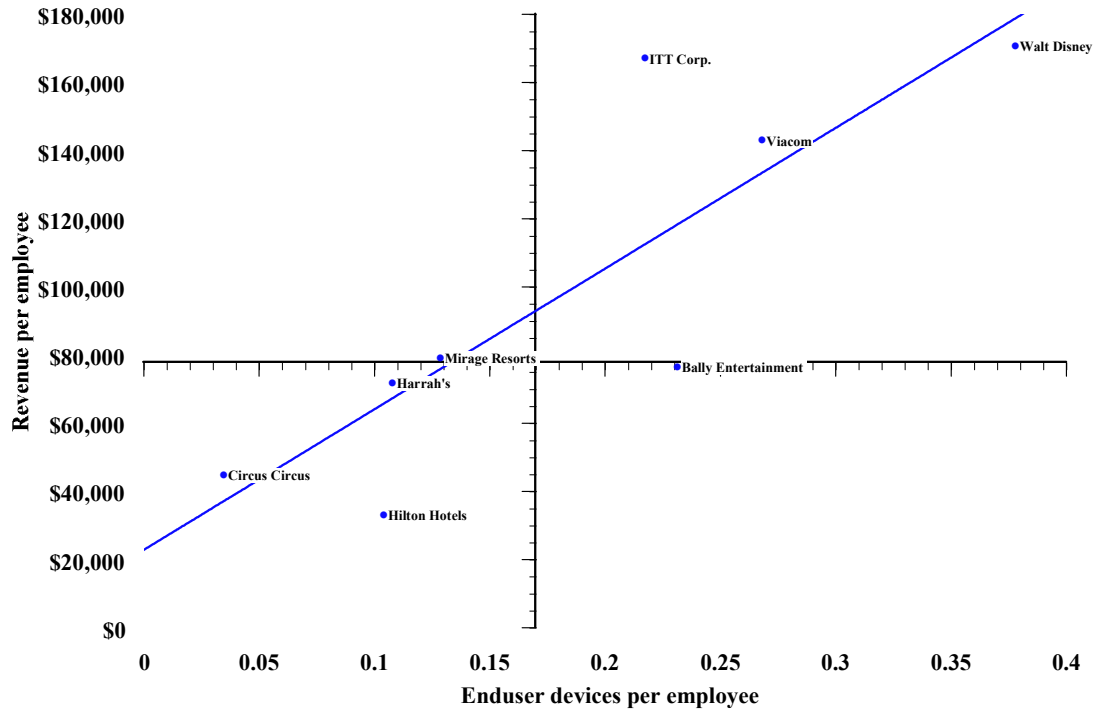
Vencor

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG INSURANCE COMPANIES, 1996**



Enduser devices per employee				
<i>20th Century</i>	<i>Cuna Mutual</i>	<i>Loews</i>	<i>Provident</i>	<i>United Healthcare</i>
<i>AFLAC</i>	<i>FHP International</i>	<i>Lutheran Brotherhood</i>	<i>Providian</i>	<i>United Service Auto</i>
<i>Aetna Life</i>	<i>Federated Mutual</i>	<i>Massachusetts Mutual</i>	<i>Reliance Group</i>	<i>Unitrin</i>
<i>Alleghany</i>	<i>First Colony</i>	<i>Metropolitan Life</i>	<i>Reliastar Financial</i>	<i>Value Health</i>
<i>Allmerica Financial</i>	<i>Foundation Health</i>	<i>Midatlantic Medical</i>	<i>Safeco</i>	<i>WR Berkley</i>
<i>American Bankers Insurance</i>	<i>Fremont General</i>	<i>Minnesota Mutual</i>	<i>Sentry Insurance</i>	<i>Wellpoint Health</i>
	<i>Geico</i>	<i>Mutual Life of NY</i>	<i>St Paul Companies</i>	
<i>American Financial Group</i>	<i>General American Life</i>	<i>Mutual of Omaha</i>	<i>Standard Insurance</i>	
<i>American General</i>	<i>General Re</i>	<i>National Life Insurance</i>	<i>State Farm Group</i>	
<i>American International</i>	<i>Guardian Life</i>	<i>Nationwide Insurance</i>	<i>Sunamerica</i>	
<i>American National</i>	<i>Harleysville Mutual</i>	<i>New England Mutual</i>	<i>Teachers Insurance</i>	
<i>American Re</i>	<i>Healthsource</i>	<i>New York Life</i>	<i>TIG</i>	
<i>American United Life</i>	<i>Humana</i>	<i>Ohio Casualty</i>	<i>Torchmark</i>	
<i>Amica Mutual</i>	<i>ITT Hartford</i>	<i>Old Republic International</i>	<i>Transamerica</i>	
<i>Aon</i>	<i>Jefferson Pilot</i>	<i>Pacific Mutual Life</i>	<i>Travelers Group</i>	
<i>Auto Owners Insurance</i>	<i>John Alden Financial</i>	<i>Pacificare Health Systems</i>	<i>UNUM</i>	
<i>Berkshire Hathaway</i>	<i>John Hancock</i>	<i>Penn Mutual Life</i>	<i>USF&G</i>	
<i>Cigna</i>	<i>Knights of Columbus</i>	<i>Phoenix Home Life</i>	<i>US Healthcare</i>	
<i>Chubb</i>	<i>Leucadia National</i>	<i>Physicians Corporation</i>	<i>US Life</i>	
<i>Cincinnati Financial</i>	<i>Liberty Mutual</i>	<i>Principal Mutual Life</i>		
<i>Conseco</i>	<i>Lincoln National</i>	<i>Progressive</i>		

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG RECREATIONAL SERVICES COMPANIES, 1996**



revenue per employee=\$22,598- \$412,718(PCs & terminals per employee)

correlation =.84; percent variance explained =66%

Bally Entertainment Corporation

Circus Circus Enterprises

Harrah's Entertainment

Hilton Hotels

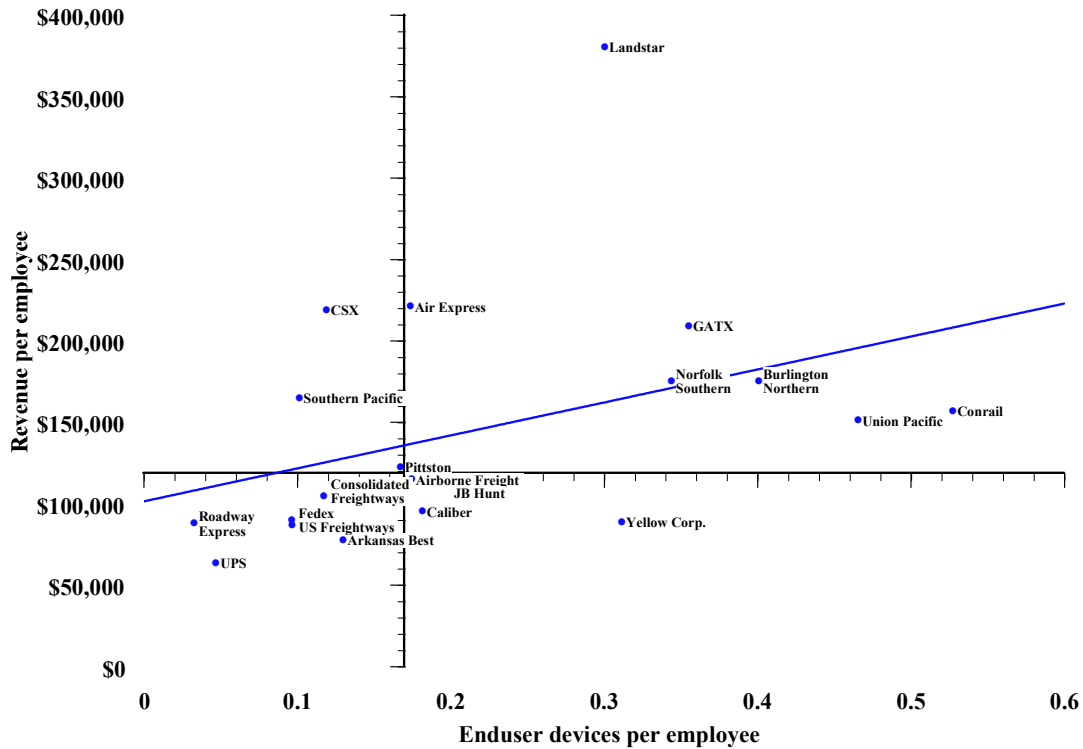
ITT Corporation

Mirage Resorts Inc.

Viacom

Walt Disney Company

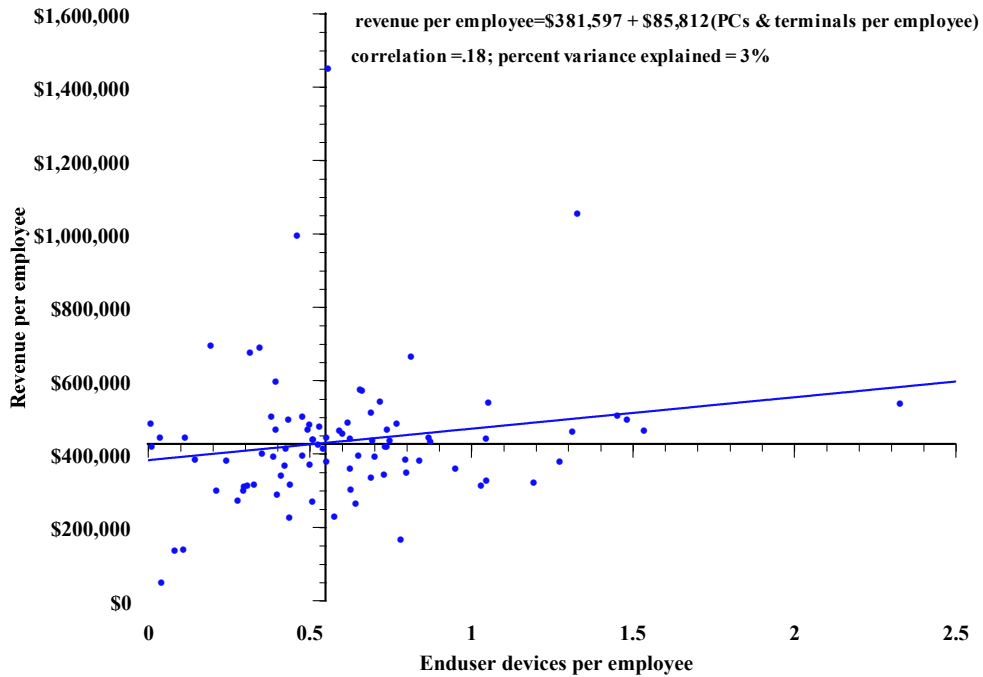
**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG TRANSPORTATION SERVICES COMPANIES, 1996**



revenue per employee = \$101,066 + \$202,448(PCs & terminals per employee)
 correlation = .39; percent variance explained = 15%

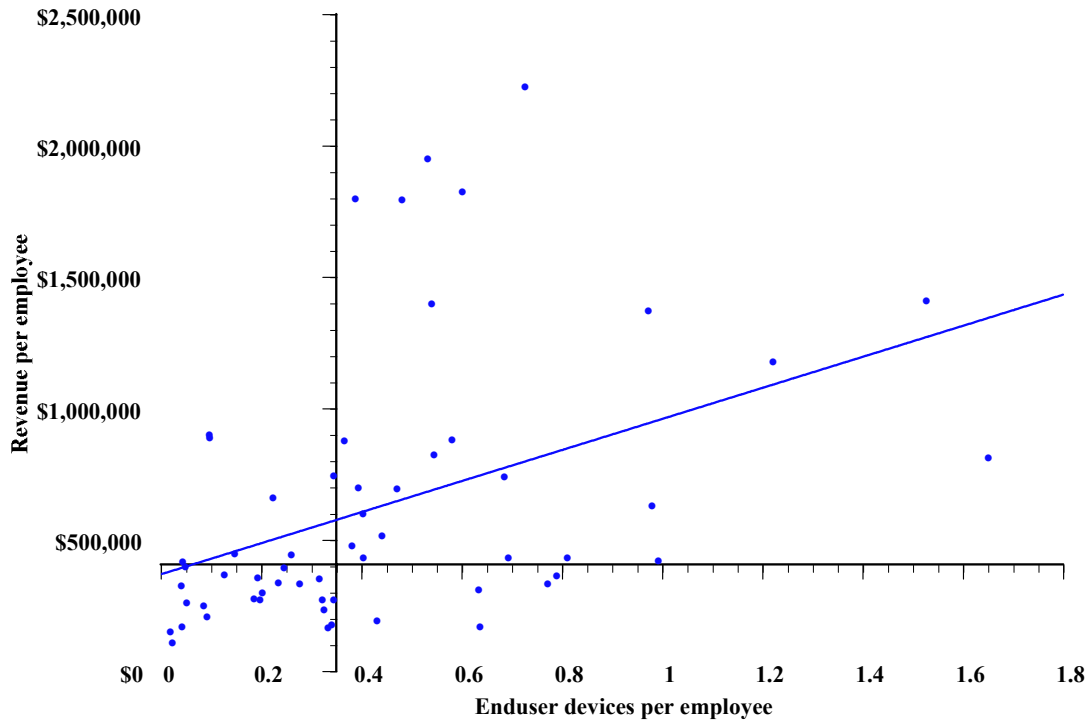
- | | | |
|-------------------------------------|-----------------------------------|---|
| <i>Air Express Internaitonal</i> | <i>Consolidated Freightways</i> | <i>Roadway Express</i> |
| <i>Airborne Freight</i> | <i>Federal Express</i> | <i>Southern Pacific Rail</i> |
| <i>Arkansas Best</i> | <i>GATX</i> | <i>US Freightways</i> |
| <i>Burlington Northern Santa Fe</i> | <i>JB Hunt Transport Services</i> | <i>Union Pacific</i> |
| <i>CSX Corporation</i> | <i>Landstar System</i> | <i>United Parcel Service of America</i> |
| <i>Caliber System</i> | <i>Norfolk Southern</i> | <i>Yellow Corporation</i> |
| <i>Conrail</i> | <i>Pittston Company</i> | |

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG UTILITY COMPANIES, 1996**



<i>Allegheny Power System</i>	<i>DTE Energy</i>	<i>Midamerican Energy</i>	<i>Peco Energy</i>	<i>Williams Cos</i>
<i>American Electric Power</i>	<i>Delmarva Power & Light</i>	<i>Montana Power</i>	<i>Peoples Energy</i>	<i>Wisconsin Energy</i>
<i>Atlanta Gas Light</i>	<i>Dominion Resources</i>	<i>National Fuel Gas</i>	<i>Pinnacle West Capital</i>	
<i>Atlantic Energy</i>	<i>Duke Power</i>	<i>New England Electric</i>	<i>Portland General</i>	
<i>Baltimore Gas & Electric</i>	<i>Eastern Enterprises</i>	<i>New York State Electric & Gas</i>	<i>Potomac Electric Power</i>	
<i>Boston Edison</i>	<i>El Paso Natural Gas</i>	<i>Niagara Mohawk Power</i>	<i>Public Service Co of Col.</i>	
<i>Brooklyn Union Gas</i>	<i>Enova</i>	<i>Nicor</i>	<i>Public Service Enterprise</i>	
<i>Browning Ferris Industries</i>	<i>Enserch</i>	<i>Nipsco Industries</i>	<i>Puget Sound Power &</i>	
<i>CMS Energy</i>	<i>Entergy</i>	<i>Noram Energy</i>	<i>Light</i>	
<i>Carolina Power & Light</i>	<i>Equitable Resources</i>	<i>Northeast Utilities</i>	<i>Rochester Gas & Electric</i>	
<i>Centerior Energy</i>	<i>FPL Group</i>	<i>Northern States Power</i>	<i>Scana</i>	
<i>Central & South West</i>	<i>Florida Progress</i>	<i>Ogden</i>	<i>SCECorp</i>	
<i>Central Maine Power</i>	<i>General Public Utilities</i>	<i>Ohio Edison</i>	<i>Sonat</i>	
<i>Cinergy</i>	<i>Hawaiian Electric</i>	<i>Oklahoma Gas & Electric</i>	<i>Southern Company</i>	
<i>Citizens Utilities</i>	<i>Houston Industries</i>	<i>Oneok</i>	<i>TECO Energy</i>	
<i>Coastal</i>	<i>Illinova</i>	<i>Orange & Rockland Utilities</i>	<i>Texas Utilities</i>	
<i>Columbia Gas</i>	<i>KN Energy</i>	<i>PP&L Resources</i>	<i>Unicom</i>	
<i>Commonwealth Energy</i>	<i>Kansas City Power & Light</i>	<i>Pacific Enterprises</i>	<i>Union Electric</i>	
<i>Consolidated Edison</i>	<i>LG&E</i>	<i>Pacific Gas & Electric</i>	<i>Utilicorp</i>	
<i>Consolidated Natural Gas</i>	<i>Long Island Lighting</i>	<i>Pacificorp</i>	<i>WMX Technologies</i>	
<i>DPL</i>	<i>MCN</i>	<i>Panergy</i>	<i>Western Gas</i>	
<i>DQE</i>			<i>Western Resources</i>	

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG WHOLESALE TRADE COMPANIES, 1996**

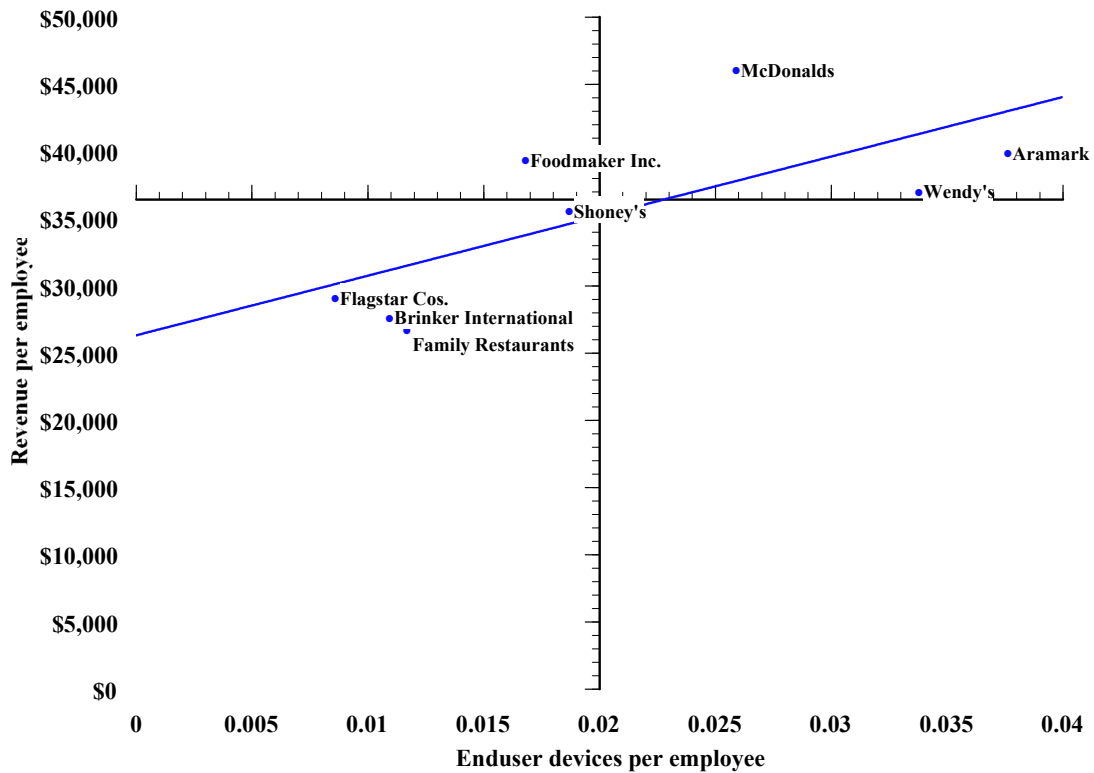


revenue per employee = \$368,179 + \$591,026(PCs & terminals per employee)

correlation = .41; percent variance explained = 17%

<u>Durable Goods</u>		<u>Non-Durable Goods</u>		
Ameridata Technologies	Inland Steel	Alco Standard	McKesson	Univar
Anixter	Intelligent Electronics	Amerisource Health	Nash Finch	Universal
Arrow Electronics	Kaman	Andersons	Richfood	White Rose Foods
Avent	Marshall Industries	Bergen Brunswig	Roundy's	
Bearings	Merisel	Cardinal Health	Rykoff Sexton	
Commercial Metals	Microage	Certified Grocers	Sigma Aldrich	
Cotter	Owens & Minor	Dimon	Smart & Final	
Crane	Rexel	Enron	Spartan Stores	
Earle M. Jorgensen	Safeguard Scientifics	Fleming	Standard Commercial	
Fisher Scientific	Stewart & Stevenson	Foxmeyer Health	Super Food Services	
Genuine Parts	Tech Data	International Multifoods	Supervalu	
Graybar Electric	Waban	JP Foodservice	Sysco	
Handleman	WW Grainger	MA Hanna	United Grocers	
Hughes Supply	Wyle Electronics		United Stationers	

**CORPORATE PRODUCTIVITY AND DIFFUSION OF ENDUSER DEVICES
AMONG EATING PLACES, 1996**



revenue per employee = \$26,215 + \$443,480(PCs & terminals per employee)

correlation = .71; percent variance explained = 50%

- Aramark*
- Brinker International*
- Family Restaurants*
- Flagstar*
- Foodmaker*
- McDonalds*
- Shoney's*
- Wendy's*

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