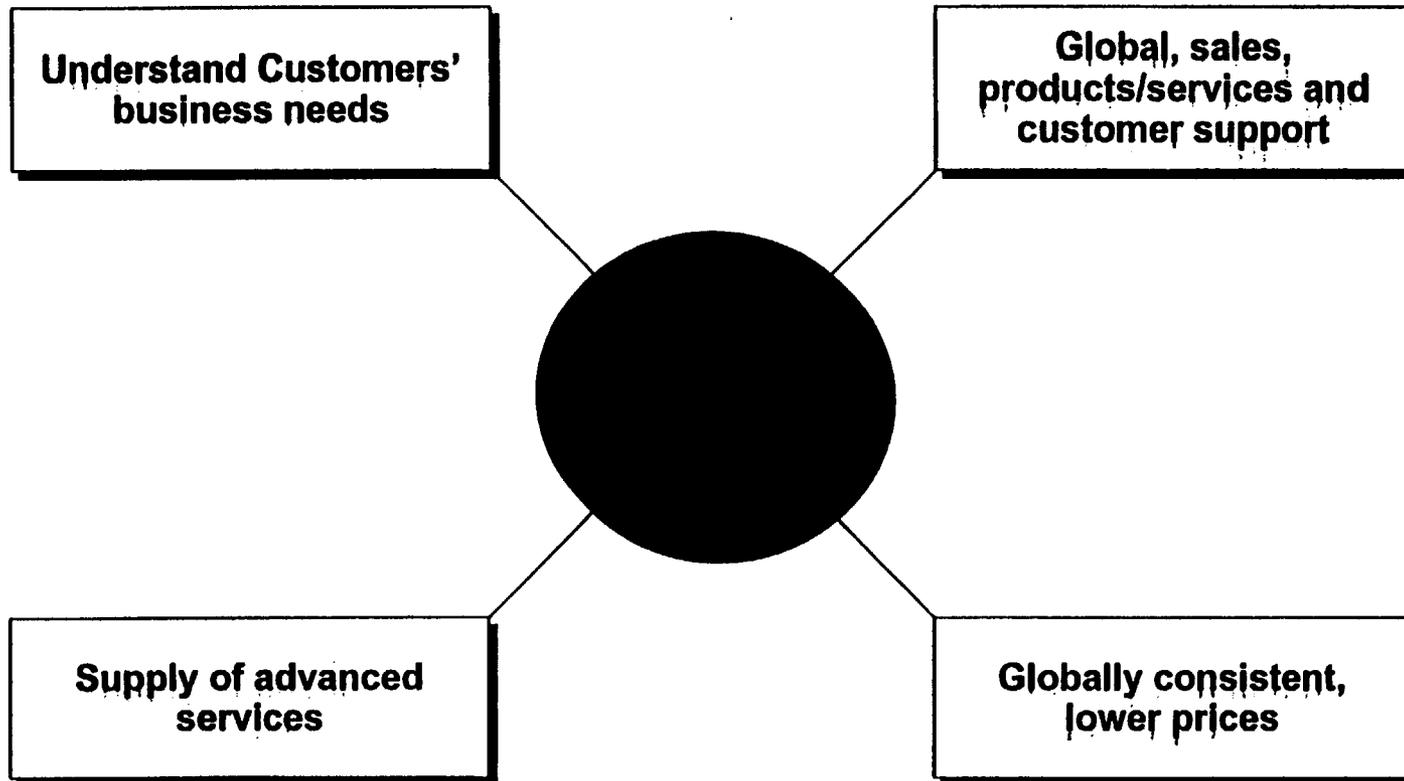


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## **Alliances' Ability to Meet Customer Needs**

# We will assess the performance of the traditional alliances against the four key customer needs



Source: [http://www.bt.com/global\\_reports/1998-99/intro.htm](http://www.bt.com/global_reports/1998-99/intro.htm), 8/7/98.  
[http://www.bt.com/global\\_reports/european\\_business/page\\_6.htm](http://www.bt.com/global_reports/european_business/page_6.htm), 8/7/98.  
<http://www.tma.org.uk/industry/research/TmaSurv98Pres4.htm>, 29/1/98.

ALLIANCES ABILITY TO MEET CUSTOMER NEEDS

**Overall, customers believe alliances perform poorly compared to others - even in supposedly strong areas such as global reach**

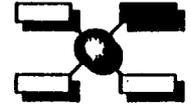
		<i>Global Reach</i>	<i>Services Offered</i>	<i>Network Quality</i>	<i>Tariffs</i>	<i>Customer Service</i>	<i>Internationality</i>
<b>Alliances</b>	<b>Global One</b>	3.73	3.84	3.72	3.19	3.24	2.00
	<b>Concert</b>	3.73	3.59	3.48	3.28	3.30	4.00
	<b>Unisource</b>	3.89	3.44	3.78	2.67	2.93	2.00
<b>Traditional Carriers</b>	<b>MCI</b>	3.73	3.78	3.62	3.51	3.27	2.00
	<b>AT&amp;T</b>	3.73	3.70	3.74	3.09	3.30	2.00
	<b>Cable &amp; Wireless</b>	3.96	3.63	3.33	3.52	3.37	2.00
	<b>BT</b>	3.81	3.73	3.77	2.72	3.02	2.00
<b>New Carriers</b>	<b>IBM</b>	3.73	3.50	3.55	3.40	3.38	2.00
	<b>WorldCom</b>	3.50	3.50	3.96	3.20	3.28	2.00
	<b>Sita/Equant</b>	3.73	3.72	3.96	3.20	3.28	2.00
	<b>CompuServe</b>	3.73	3.36	3.55	3.19	3.27	2.00

***From a customer perspective, the clear winners are often the new carriers.***

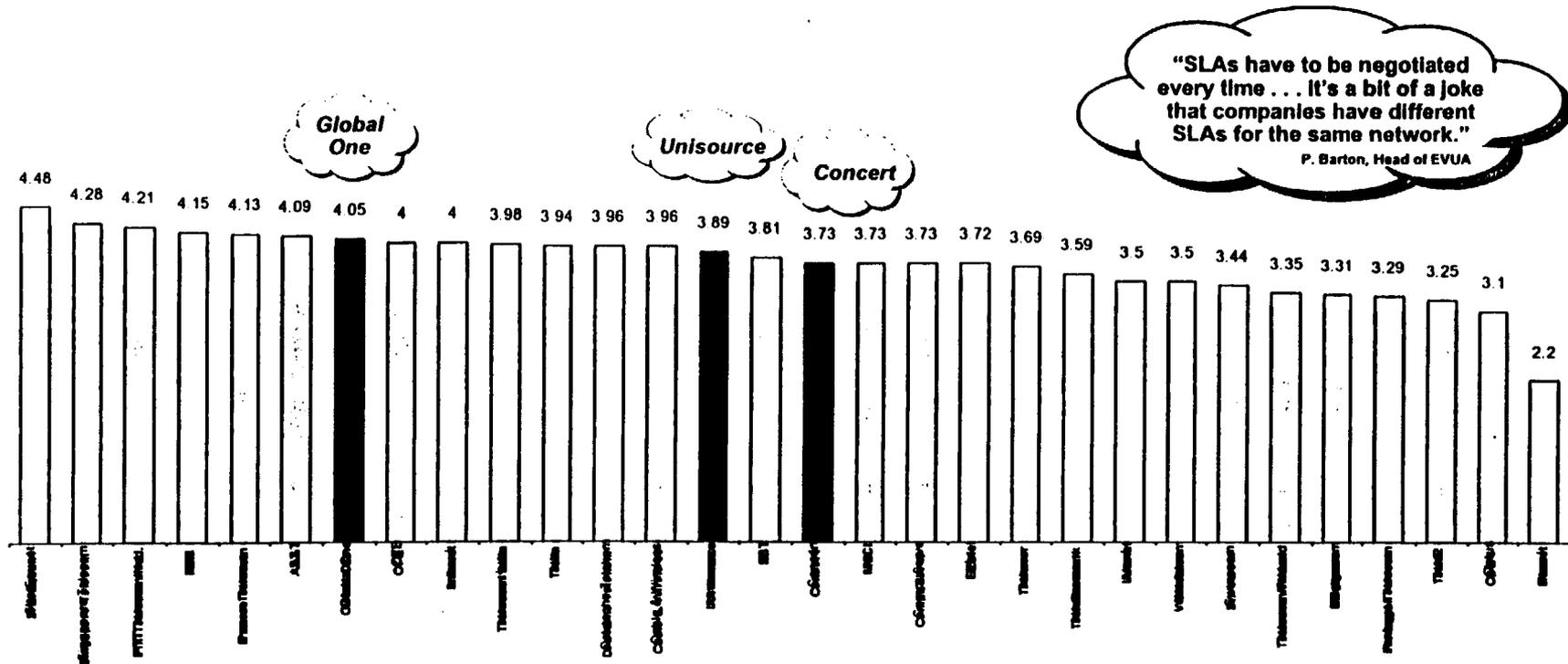
Source: *Communications Week*, International Survey of Telecom Users, April 1993.

ALLIANCES ABILITY TO MEET CUSTOMER NEEDS

# Customers do not believe the alliances lead the field in terms of the extent of their global reach



## Rank the Four Major Carriers Based on Extent of Global Reach



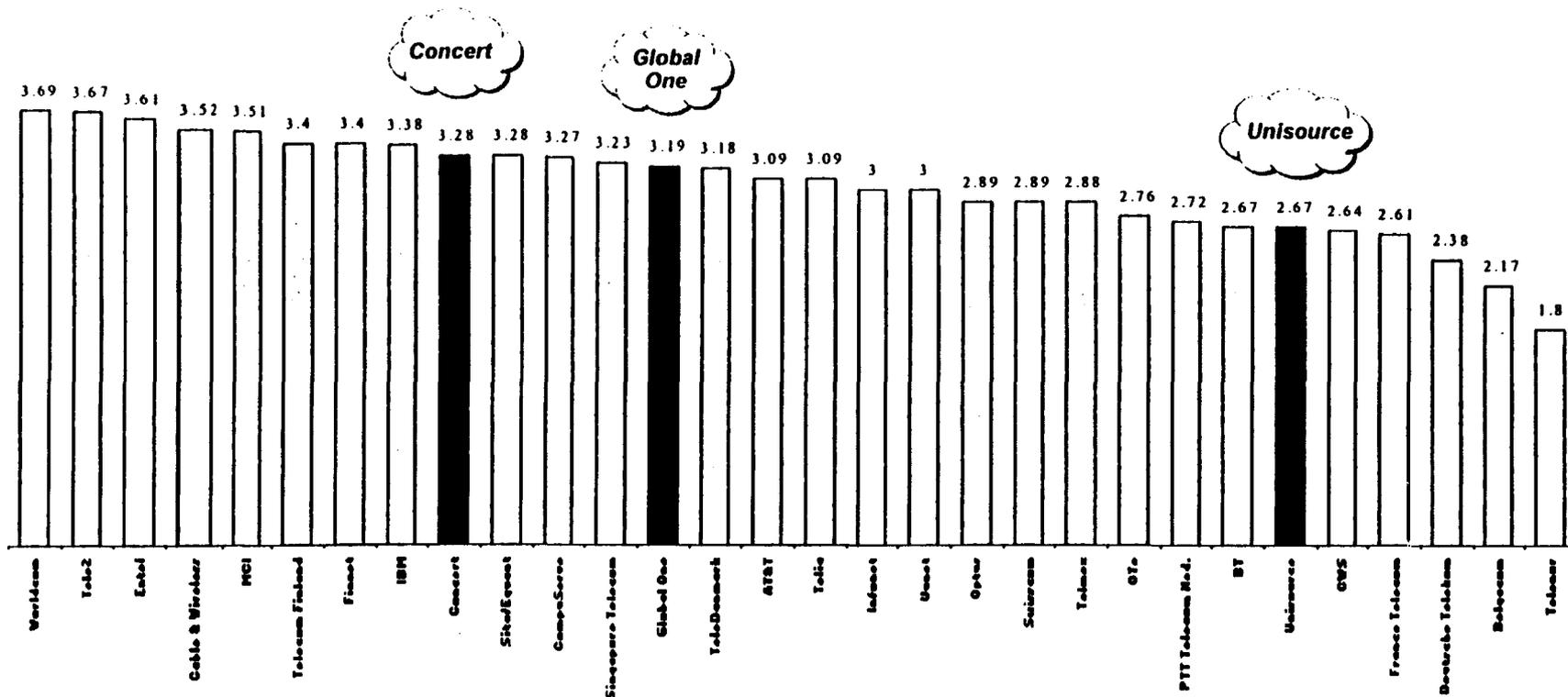
**"If a carrier or alliance advertises they offer a global service, I would be quite happy to take them to the Advertising Standards Authority"**  
—R Sykes, Group Information Systems Manager, ICI.

Source: <http://www.totaltele.com/winning.html>. C. Mendler, Users Intensity Carrier Evaluation, Communications Week International (5/9/97); C. Mendler, UK: But no Bouquet For Users, Communications Week International, 25/11/98.  
Not: Communications Week International survey of telecom customers, April 1998, covering 731 business telecom users from 85 countries, users ranked on a scale of 1-5 where 1=very poor and 5=excellent.

# Alliances also do not deliver any significant price advantages

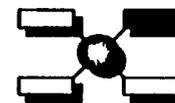


## Rank the Four Major Carriers Based on Attractiveness of Pricing



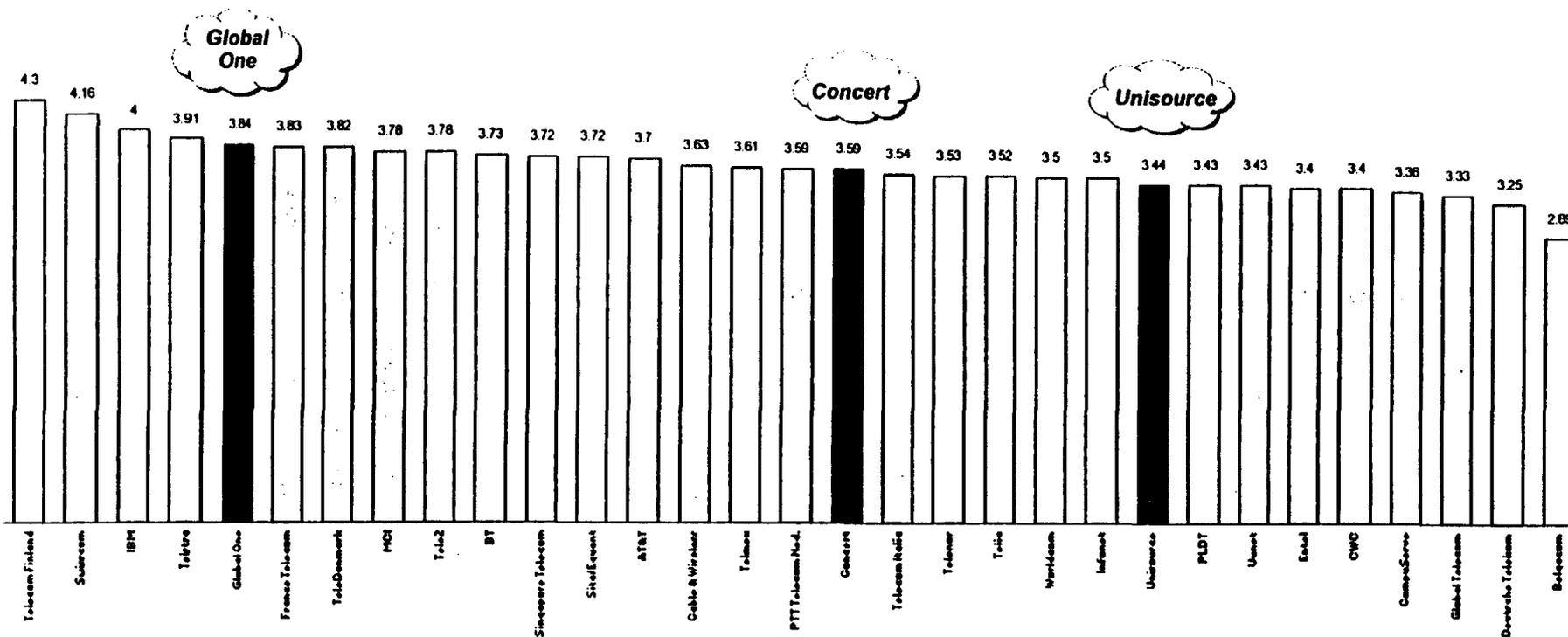
Source: <http://www.totalele.com/winning.html>.

Not: Communications Week International survey of telecom customers, April 1998, covering 731 business telecom users from 85 countries, users ranked on a scale of 1-5 where 1=very poor and 5=excellent.



# ... or a better portfolio of services offered

## Rank the Four Major Carriers Based on Services Offered

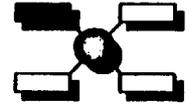


**Global One is the only alliance positioned strongly in this area.**

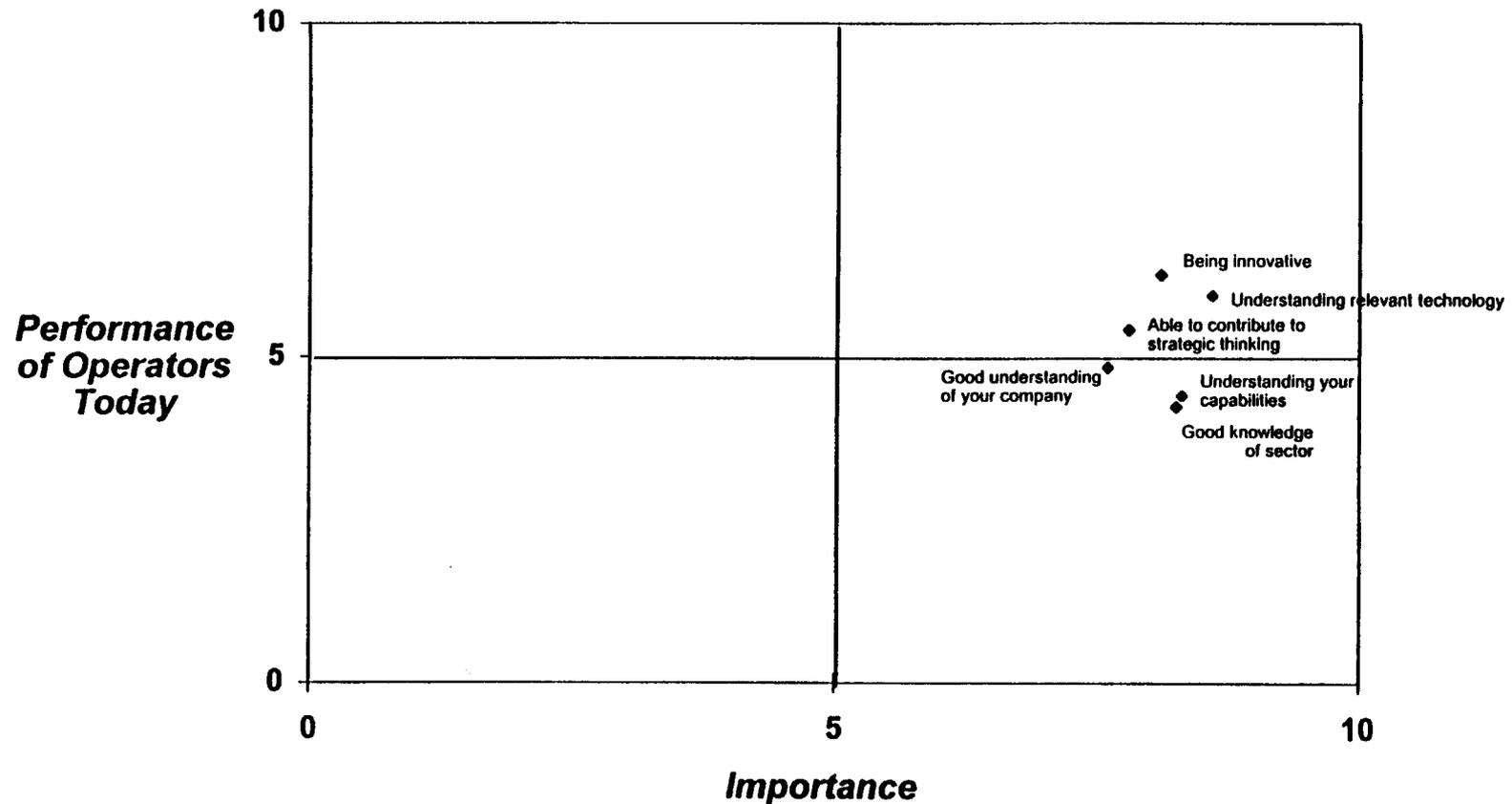
Source: <http://www.totaltele.com/winning.html>;

Note: Communications Week International survey of telecom customers, April 1998, covering 731 business telecom users from 85 countries, users ranked on a scale of 1-5 where 1=very poor and 5=excellent.

# Generally, all operators including alliances fail to understand the customer's business



## Importance/Performance Ratio of Telecom Suppliers to the Industry



Source: Bruce Hepburn, On-line Communication Trading and Information Services (Mactavish Hepburn Research 11/97)  
Note: UK data, n = 350 consultants, 200 phone interviews, 60 briefings.

# The Global Alliance model may be an idea whose time will never come, with new carriers for integrators being the likely winners

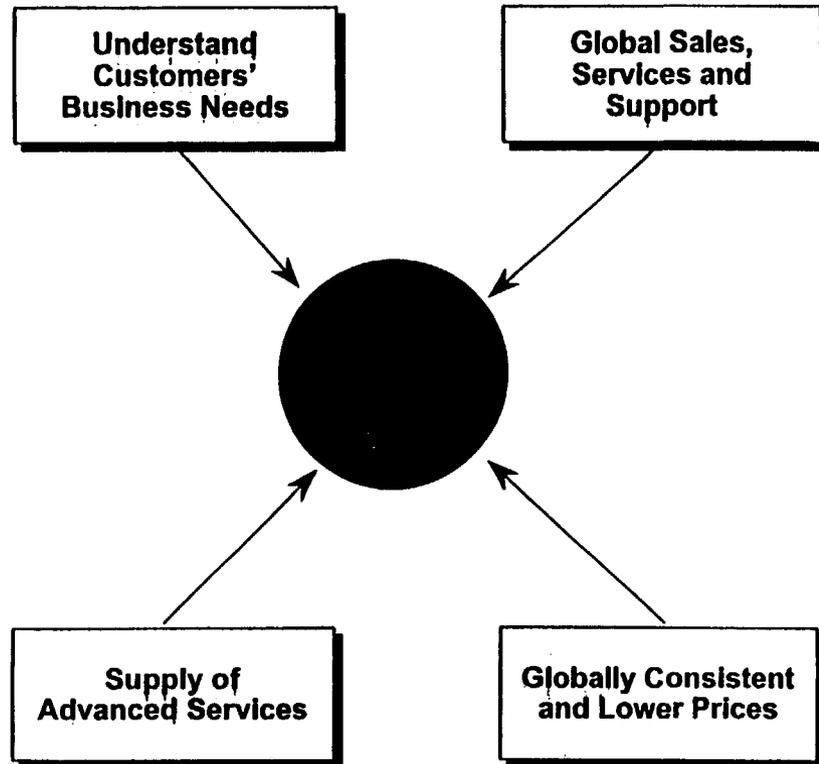
## Ability to Meet Needs

Customer Needs	Capabilities Required to Deliver Needs	Global Alliances			New Carriers		System Integrators
		Global One	Concert	World Partners	Worldcom	Equant/Sita	IBM
<b>Global Sales, Services and Support</b>	<ul style="list-style-type: none"> <li>• Internationally interconnected, services with network in all key geographies</li> <li>• Consistent service level across geographies</li> <li>• Global processes</li> <li>• Global distribution and support network</li> <li>• Clear decision maker</li> </ul>						
<b>Globally Consistent and Lower Pricing</b>	<ul style="list-style-type: none"> <li>• Owned infrastructure, or</li> <li>• Open relations with lowest price national operators</li> <li>• Level interconnect pricing</li> <li>• Low overheads</li> </ul>						
<b>Supply of Advanced Services</b>	<ul style="list-style-type: none"> <li>• Ability to tailor best solution for customer</li> <li>• IT/system integrator capabilities</li> <li>• Network that supports voice, data and video</li> </ul>						
<b>Understand &amp; Tailor to Customers' Businesses</b>	<ul style="list-style-type: none"> <li>• External, customer focus</li> <li>• Vertical industry knowledge</li> <li>• Central knowledge management</li> </ul>						

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## **Implications for the future of global telecom alliances**

## Multinational customers are demanding advanced, integrated services that challenge the capabilities of traditional operators

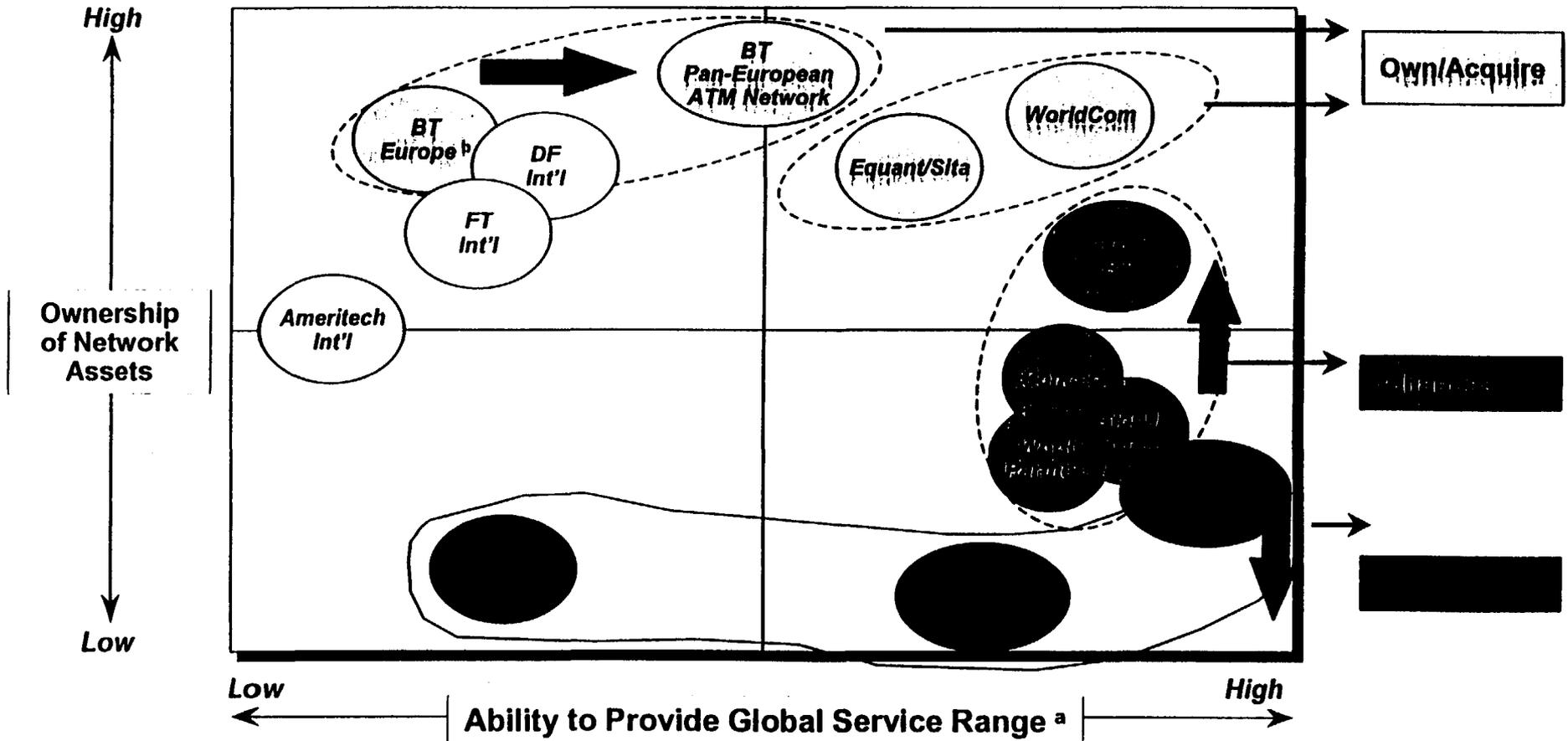


### ***Capabilities Required to Meet Needs***

- **Ability to supply interoperable services in all key countries:**
  - Owned network or agreements.
- **Distribution, customer service and billing systems using same standards worldwide.**
- **Consulting/solution delivery capabilities**
- **Integration capabilities**
- **Network that supports data and e-commerce services**

IMPLICATIONS FOR THE FUTURE

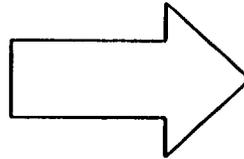
**In this new world, we believe the telecom alliance model will be squeezed out by either owners or integrators**



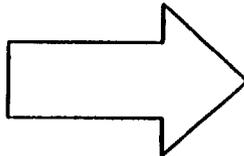
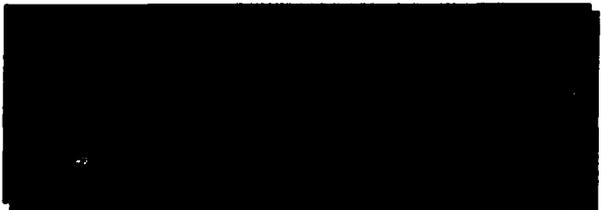
a. A position at the high end of the Global Service range would include broad geographic coverage and a full service range (voice, data, video, Internet)  
 b. Equity investments are national operators (I.e. VIAG Interkom, Cegetel, etc.)  
 c. European Virtual Private Network Users Association.  
 d. Partnership with CSC

# We will examine three new models to understand success factors for serving multinationals

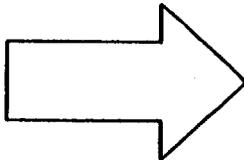
## *Examples To Be Explored:*



**WorldCom**



**IBM and  
System Integrators**

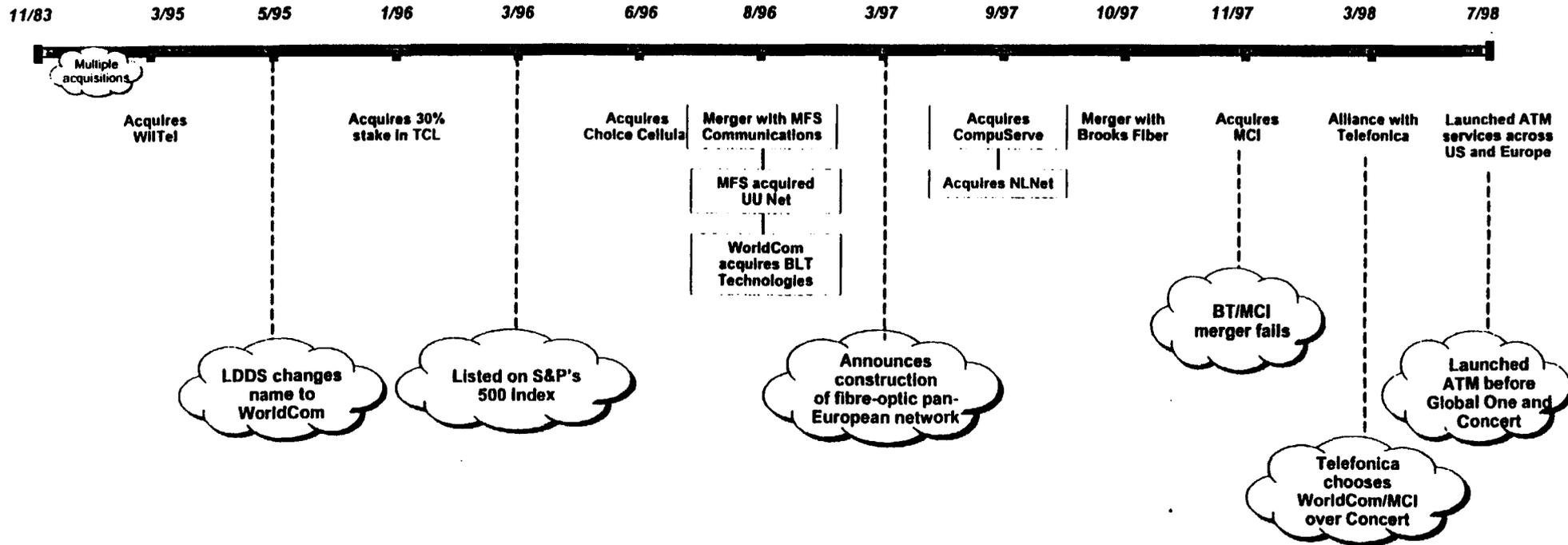


**AT&T and BT  
Joint Venture**

IMPLICATIONS FOR THE FUTURE

# WorldCom is shaking the foundations of the global alliances with its aggressive international acquisitions and investments

## WorldCom Corporate Development



***"WorldCom is really leading the pack at the pack at the moment"***  
 —B Flanigan, Ovum.

Source: WorldCom/MCI, *Communications Today*, 10/3/98; A Kupler, MCI/WorldCom, *Fortune*, 27/4/98; "WorldCom Steals a Lead with US-European ATM, D Molony, *Communications Week International*, 20/7/98; [http://www.wcom.com/about\\_WorldCom/corporate-timeline/](http://www.wcom.com/about_WorldCom/corporate-timeline/).

IMPLICATIONS FOR THE FUTURE

# As a result, WorldCom's network provides full local and outbound services to its international customers

Service	UK	Germany	France	NL	Belgium	Italy	Switzer-land	Sweden	Hong Kong	Japan	USA
Public Switched Voice	✓	✓	✓	✓			✓	✓			
Corporate International Direct Dial	✓	✓	✓	✓	✓	✓	✓	✓			✓
national Frame Relay		✓									✓
International Frame Relay	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
International Private Circuits	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Metropolitan Area Network	London	Frankfurt	Amsterdam	Brussels				Stockholm			47 Cities
Global Transit Internet Connectivity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Corporate Internet Services	✓	✓	✓	✓	✓	✓	✓	✓			✓

## **Their network allows them to capitalise on the fastest growing segments of the European data market**

### ***WorldCom's European Strategy***

- **The company is focusing primarily on the \$60bn European business market:**
  - It will deploy broadband (frame relay/ATM/Internet) infrastructure in key local markets along high-traffic, long-distance and cross-border routes.
  - The European business communications market is expected to grow at a CAGR of 8.4% to 490bn in 2001.
- **The UUNET and MCI acquisitions will provide WorldCom with the largest Internet backbone:**
  - UUNET is a leading ISP in Europe and focuses on the corporate market.
- **WorldCom is currently constructing pan-European and transatlantic networks:**
  - The two systems, Gemini and Ulysses, will position WorldCom as the first and only facilities-based 'North Atlantic' telecom company.
- **The company has signed interconnection agreements with the incumbent phone companies in Germany, France, the UK, Sweden and the Netherlands:**
- **These countries comprise 60% of the European market.**
- **WorldCom's merger and acquisition, alliance and construction activity will allow the company to provide integrated services entirely across its own network**

***WorldCom is well-positioned to capture a significant market share from incumbent telecom carriers.***

## WorldCom has undertaken other acquisitions to expand its telecom presence worldwide

### *WorldCom Strategic Acquisitions and Alliances*

<b>Companies</b>	<b>Merger/ Acquisition/ Alliance</b>	<b>Date</b>	<b>Cost</b>	<b>Strategy</b>
Telefonica and MCI	Alliance	March 1998	—	<ul style="list-style-type: none"> <li>• To create strategic business ventures and enter new markets in Southern Europe and Latin America</li> <li>• To leverage Telefonica's experience in low teledensity areas</li> </ul>
UUNET acquired NLnet, leading Dutch ISPO	Acquisition	Sept. 1997	\$25m – \$30m	<ul style="list-style-type: none"> <li>• To consolidate WorldCom's position in the European business-focused Internet services market</li> </ul>
France Telecom and Deutsche Telecom	Agreement	May and June 1997	—	<ul style="list-style-type: none"> <li>• Interconnection agreements to allow any WorldCom customer to communicate with any subscriber on France Telecom or Deutsche Telecom's networks</li> </ul>
BLT Technologies	Acquisition	August 1997	n/a	<ul style="list-style-type: none"> <li>• To expand WorldCom's presence in the prepaid phone card market</li> </ul>
Williams Telecommunications Group (WITel)	Acquisition	January 1995	\$2.5bn	<ul style="list-style-type: none"> <li>• To acquire nationwide US transmission network of 11,000 miles of fibre-optic cable and digital microwave facilities</li> </ul>

# As a result, WorldCom is well positioned to provide multinational customers with full products and services

<b>Customer Needs</b>	<b>WorldCom Capabilities</b>	<b>Ability to Meet Needs</b>
<b>Global Sales, Services, and Support</b>	<ul style="list-style-type: none"><li>• Own network linking US and major European cities</li><li>• Services still relatively basic</li><li>• Wide range of services including Internet and basics</li><li>• Wide network of partners</li></ul>	
<b>Global Best Pricing</b>	<ul style="list-style-type: none"><li>• Perceived to have best pricing</li><li>• US long distance facilities</li><li>• Advanced infrastructure in Europe</li><li>• Able to bundle Internet services</li><li>• Significant undersea cable investments</li><li>• Achieve cost benefits of sharing network traffic</li></ul>	
<b>Supply of Advanced Services</b>	<ul style="list-style-type: none"><li>• Building pan-European network</li><li>• Focuses on data solutions</li><li>• Largest Internet backbone</li><li>• Able to supply integrated services across network</li><li>• International data network</li></ul>	
<b>Understanding of Customer Businesses</b>	<ul style="list-style-type: none"><li>• Current emphasis, now that network is expanded is on product bundling</li></ul>	

Source: [http://www.wcom.com/investor\\_relations/annual\\_reports/1997/letter/](http://www.wcom.com/investor_relations/annual_reports/1997/letter/), 24/7/98.

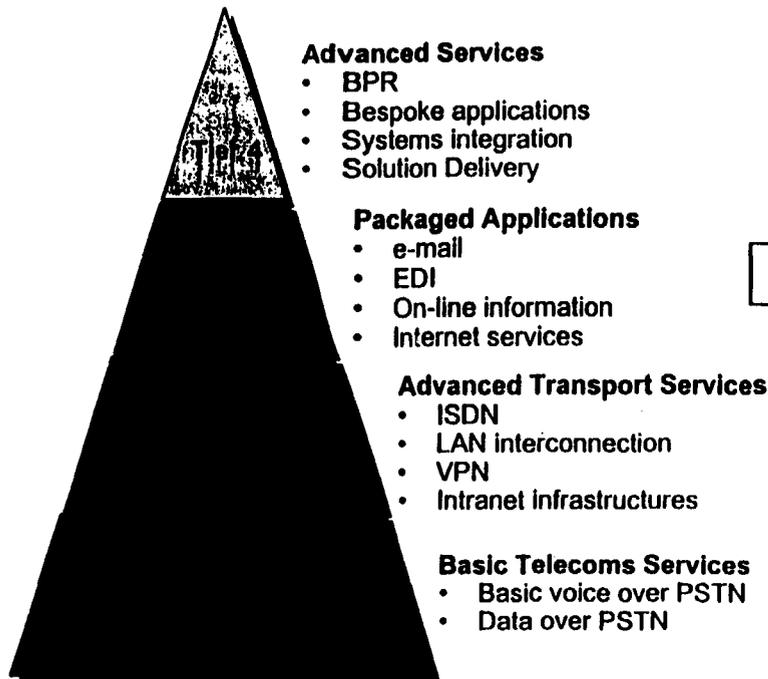
IMPLICATIONS FOR THE FUTURE

# As a second model, system integrators are also well positioned to meet multinational customer's emerging needs

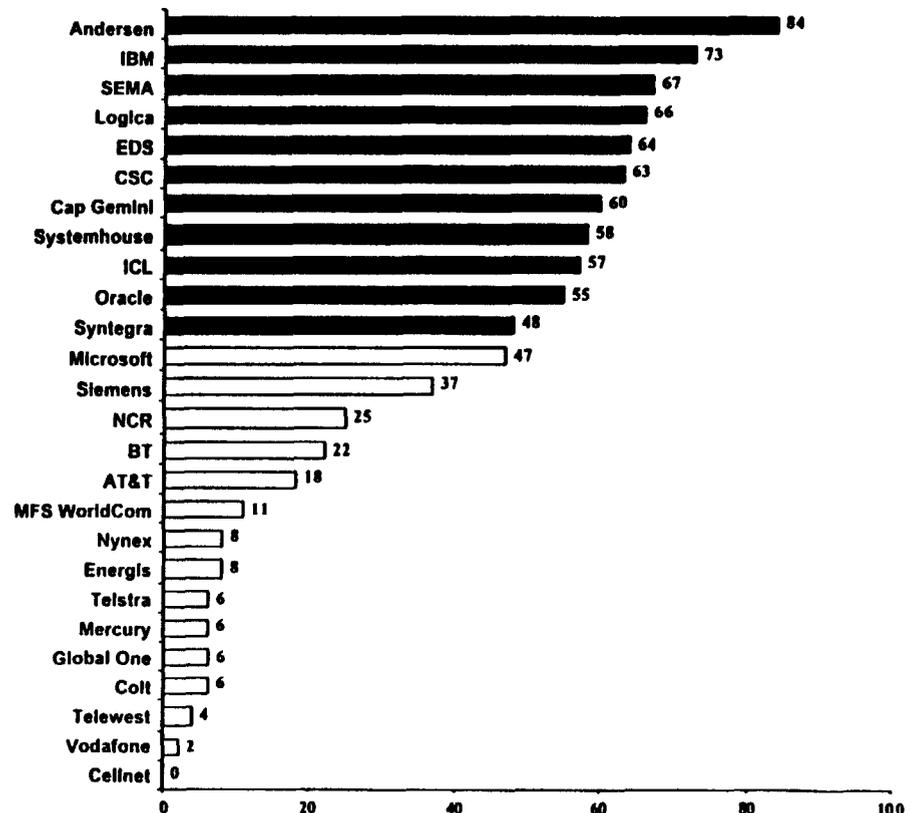
Customers look for increasingly complex voice/data solutions . . .

. . . and look to system integrators to manage solutions

### Communication Services Value Chain



### Perceived Market Positions—Risk Management (Tier 4 players)



Source: B. Hepburn, On-line Communication, Trading & Information Services, MacTarish Hepburn, 1997.

# **IBM Global Services has already been very successful recently in winning global telecom contracts**

## ***Examples of IBM Global Services***

- **Cable & Wireless and IBM Strategic Partnership:**
  - IBM Global Service has been selected to provide C&W will IT solutions and manage all Customer Management Systems
- **NTT and IBM Agreement:**
  - Agreement to provide international data transmission network services by connecting NTT's international data transmission service, Arcstar frame relay network and IBM's frame relay services
- **IBM has large data network and offers services in over 46 countries**

## ***IBM Strengths***

- **IBM is well positioned to be integrator for customers needs**
- **They are moving towards becoming more of an integrator by selling their network assets**
- **They will have increased ability to be a non biased integrator—something telcos cannot do**
- **The aim will be to take the value add component away from the telcos**

# System integrators will win by purchasing commodity services and adding value by tailoring solutions

<b>Customer Needs</b>	<b>Systems House Capability</b>	<b>Ability to Meet Needs</b>
<b>Global Sales, Service and Support</b>	<ul style="list-style-type: none"><li>• Purchase from suppliers as and where necessary</li><li>• Use integrator skills to overcome interoperability</li></ul>	
<b>Globally Consistent and Lower Pricing</b>	<ul style="list-style-type: none"><li>• Purchase from suppliers as and where necessary</li><li>• Use integrator skills to overcome interoperability issues</li></ul>	
<b>Supply of Advanced Services</b>	<ul style="list-style-type: none"><li>• Multiple industry overview</li><li>• Select most appropriate suppliers</li><li>• Work at senior/strategic level</li><li>• Computer-based background</li></ul>	
<b>Understand and Tailor to Customer's Business</b>	<ul style="list-style-type: none"><li>• Leverage industry expertise</li><li>• Complete value chain overview</li><li>• Experience in consulting and network integration</li></ul>	

# The recent AT&T and BT Joint Venture is also a step in the “owning” direction

<p><b>Structure</b></p>	<ul style="list-style-type: none"> <li>• JV between BT and AT&amp;T.</li> <li>• AT&amp;T to move out of Unisource in 2000 and World Partners in 1999.</li> <li>• Concert to be folded into JV.</li> <li>• JV will have 4 parts—Retail, Carrier’s Carrier, Concert, IP Network</li> </ul>
<p><b>Customers Sales/Distribution</b></p>	<ul style="list-style-type: none"> <li>• Partner distributors (i.e. VIAG Interkom in Germany).</li> <li>• Use of Concert’s non-exclusive distributors.</li> <li>• Focus on financial, oil and IT customers.</li> </ul>
<p><b>Network</b></p>	<ul style="list-style-type: none"> <li>• Internet protocol packet switched network.</li> <li>• Integrates voice and data.</li> <li>• Intelligence via software organised into new OSI layers that sit above TCP/IP.</li> <li>• Users have ability to build own services via Application Program Interfaces.</li> </ul>
<p><b>Financials</b></p>	<ul style="list-style-type: none"> <li>• \$3bn investment.</li> <li>• Projected sales \$10bn.</li> <li>• Anticipated growth of 15% per annum.</li> </ul>

## **The JV has many characteristics of an emerging player, despite being an alliance**

### **Strengths**

- **Owned network based on latest technology:**
  - Global services.
  - Advanced Services.
- **Strong networks worldwide have potential for cost advantages.**
- **JV is only two very strong partners, rather than a confederation**
- **Each player already has links with key customers.**
- **Strong network of BT owned European and Asian investments.**

### **Weaknesses**

- **May need to give up some assets:**
  - Particularly transatlantic cables.
- **Two very strong players need to find a way of working together:**
  - No controlling stake.
- **Network build is based on leading edge technology requiring radical rethink in technology and organisation.**
- **Customers may be sceptical of new technology.**
- **Non-exclusive distributor lacks control.**

## **All of these new models share common features that position them to win multinational business**

- **Focus on leveraging a core competency:**
  - Network operation and transmission
  - Integrator skills
- **Clear strategic intent to go after multinational companies:**
  - View European investments as a combination of assets to be use together, not as a portfolio of separate businesses each contributing on its own.
  - Broad coverage of major European cities
- **Own or use of a network that is interoperable across countries**
- **Simply organisation structure that does not have too many bosses**

***If Ameritech chooses to compete for multinationals, they need to consider options that will provide them with these attributes.***



# SALOMON SMITH BARNEY

**EQUITY RESEARCH: Telecommunications Services**

**April 9, 1998**

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Company Report

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## WorldCom, Inc.

**NASDAQ: WCOM\*#**

**Rating: 1M (Buy, Medium Risk)**

Combination with MCI Creates the Only Legitimate  
Telecom Large-Cap Growth Stock

**Opinion:**

- \* We are reinitiating coverage of WorldCom following the shareholder vote on the MCI merger with a 1M (Buy, Medium Risk) rating, a 12-month price target of \$60, and a 24-month price target of \$90.
- \* WorldCom pro forma for MCI represents a large-cap growth stock in the same vein as Merck, Home Depot, Wal-Mart, Disney, Microsoft, etc.—an \$83+ billion market-cap company with five-year top-line growth of 17% and five-year EPS growth of 32%. We believe WorldCom should trade at a 30x-35x multiple of earnings—similar to these other large-cap growth stocks.
- \* WorldCom has the most diverse set of strategic assets in the telecom industry and MCI brings WorldCom a base of large customers, a world-class sales force, and systems capabilities to leverage these assets. The result is the only true fully integrated local/long-distance on-net provider of voice, data, and IP on a domestic and global basis.
- \* WorldCom represents the best combination of growth and value in the global telecommunications industry.

Price 04/07/98	52-Week Range	Earnings per Share			P/E Ratios		Yield	Est. 5-Yr. EPS Growth
		12/97A	12/98E	12/99E	12/98E	12/99E		
\$42.75	\$45-\$21	\$0.40	\$0.85	\$1.90	50.3x	22.5x	Nil	32%

**Market Capitalization:** \$46 billion (\$83 billion pro forma for MCI)

**S&P 500:** 1109.55

A Member of Travelers Group

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**The Only Legitimate Telecom Large-Cap Growth Stock**

*Starting in 1999, we see five-year EPS growth of 32% and five-year revenue growth of 17%.*

*WorldCom is a blue-chip large-cap growth stock which should trade at over a 30x P/E ratio.*

We believe WorldCom represents the only legitimate large cap growth stock in the entire telecommunications universe. Using 1999 as a base since this will be the first full year of MCI being included in WorldCom, we believe WorldCom can grow earnings at a 32% per year clip over the next 5 years with revenue growth running at 17% per year. Specifically, we believe WorldCom's EPS will rise to \$2.90 in year 2000 from \$1.90 in 1999, to \$4.00 in 2001 and to \$5.25 in year 2002. At the same time despite capital spending of \$7-\$8 billion per annum (or \$30 billion plus cumulatively over four years), WorldCom's free cash flow per share should rise from slightly less than \$1.00 per share in 1999 to \$4.20 per share by 2002, which would allow WorldCom to even further deleverage taking its debt-to-total-capital ratio from less than 30% in 1999 to the mid-teens by 2002.

Given that WorldCom pro forma for MCI is an \$83+ billion market cap company with \$38 billion in revenues, its aforementioned growth rates of revenues, earnings, and free cash flow put WorldCom in rarefied company within the S&P. In fact, if one were to find comparables to WorldCom in terms of size and growth the list would be very short and would include the likes of Merck, Home Depot, Wal-Mart, Coke, Microsoft, Gillette and Disney (see Figure 1). These companies on average have \$33 billion in revenues, \$128 billion of market cap and on average, grow revenues and net income 15%-20% per annum. More importantly, the average P/E ratio on 1998 earnings for this group of companies is 40x, a P/E that this group consistently trades at year in and year out. Thus, we believe that WorldCom, whose relative strategic position within its industry is very strong, who has revenues almost double the aforementioned companies, and who will exhibit growth rates at least as strong as these companies, is the only telecom stock that deserves to be added to the list of blue-chip large cap global growth stocks and hence, we believe we will see WorldCom consistently trading at a 30x-35x P/E year in and year out.

**Figure 1: S&P 500 Companies that are Comparable to WorldCom**

	1998 Mkt Cap	1998 Revenues	5 YR REV GROWTH	1998 EPS	5 YR EPS GROWTH	98 P/E
Coca Cola	\$195,288	\$19 billion	10%	\$1.88	17%	47.0
Merck	160,300	\$24 billion	18%	4.40	13%	29.7
Gillette	67,830	\$10 billion	16%	2.98	17%	40.6
Home Depot	52,806	\$24 billion	31%	1.55	30%	44.4
Walmart	114,441	\$118 billion	19%	1.77	14%	28.7
Microsoft	232,608	\$13 billion	33%	1.65	37%	52.9
Disney	74,326	\$23 billion	25%	3.18	19%	33.9
					Avg P/E	38.6
		1999 Revenues		1999 EPS		99 P/E
WorldCom	\$83,260	\$38 billion	17%	\$1.90	32%	22.5

Note: WCOM is stated in 1999 terms since 1999 will be the first full year for the combined WCOM/MCI.  
Source: Smith Barney Inc./Salomon Brothers Inc.

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*Our 12-month price target is \$60 per share and our 24-month price target is \$90 per share.*

Based on our earnings forecast, we believe WorldCom should trade at \$60 per share over the next 12 months and at \$90 per share within the next 24 months. Using a discounted cash flow model on the new WorldCom and very conservatively putting single-digit multiples of EBITDA and mid-teens multiples of earnings on WorldCom's 10 year out numbers, the net present value translates into over \$70 per share. Even after a public trading discount, this nets WorldCom a valuation in the \$60 range. Suffice it to say, WorldCom is a must own stock, since no company has its diverse set of assets, strategic position, and relative valuation to its growth rate.

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### **WorldCom's Strategic Assets Are Unmatched**

WorldCom has the most diverse set of strategic assets in this industry. In fact, one could easily draw a parallel to Microsoft where in the future, somebody will likely write about how the major telecom players in this industry allowed WorldCom to compile the best set of assets, just like people have wondered how IBM could have allowed Microsoft to usurp it in the operating systems world. We believe that there will be two to four global players who are fully integrated facilities-based providers of network services with WorldCom being the only fully integrated communications provider at the current time. We believe the companies that will trade at premium valuations in this industry will be those that can provide end-to-end connectivity especially for business customers that demand data and Internet protocol (IP) services. Basically, if one divides the telecom world into residential versus business on one hand and voice versus data/IP on the other hand, as a carrier you want to be skewed towards serving business customers with non-voice services. This is because selling voice to consumers is increasingly becoming a commodity whereas if a carrier can provide secure, reliable broadband data networks on a global basis, that carrier will command premium pricing (gross margins on data run double those of voice). Moreover, churn in data, especially among enhanced data network offerings, is virtually zero—as opposed to the high churn in voice. Thus, the IRR of a data service's product life is much higher than for voice. In fact, if a carrier has superior data capabilities, it is likely to get a business' voice traffic as well, with that voice traffic likely to be less susceptible to cheap minute promotions from competitors.

If a carrier cannot operate and control network assets in the major business centers around the world, it will not be able to guarantee service reliability and quality nor provision broadband services on a moments notice. Furthermore, the greater the percent of traffic that is carried on-net, the lower the unit cost function since on-net traffic runs at "cost" whereas traffic that is resold, by definition, runs at a multiple of somebody else's cost. In order to be such a carrier, we believe a company needs local network assets in

the top 100-150 MSAs<sup>1</sup> around the world, long-haul fiber networks in North America, Europe and parts of Asia, ownership of undersea fiber cable to "connect the dots" and of course, an IP backbone. Given that 70% of the world's telecom revenues originate out of six countries (U.S., Japan, UK, Germany, France and Italy) with 80% originating out of 20 countries, and that two thirds of the world's country to country calling touch North America and Europe, ownership of network assets in these markets is critical. This is especially true for supporting business customers, since these ratios are even more pronounced for the business market and especially for data/IP applications. Since we continue to believe that there will be a chronic shortage of bandwidth, ownership of end-to-end bandwidth is key to having long-term, profitable growth.

*We believe WorldCom has at least a one to two year head start in the provision of integrated facilities-based end-to-end services over other telcos.*

WorldCom's asset footprint is unparalleled within the telecom industry. Including MCI, it is the second largest long-distance carrier in the U.S., the largest Internet service provider in the world, the second largest carrier of international voice traffic in the world, the largest CLEC in the U.S., Western Europe, and Japan, and the largest U.S. provider of overseas private line networks. Figures 3 and 4 and Figure 10 (see pp. 28-29 for Figure 10, a map that depicts WorldCom's international assets and a separate map inset that shows WorldCom's Pan-European Ulysses Network) demonstrate WorldCom's depth and breadth of network assets while in Figure 2 we compare WorldCom to other leading telecom companies and it is clear no carrier has WorldCom's diverse set of network assets. WorldCom operates pro forma with MCI a 45,000 mile domestic long-distance fiber network which puts it on par with AT&T in terms of scale and scope and WorldCom has an OC-48/OC-192 backbone. In addition, WorldCom operates in 100 domestic local markets with facilities-based networks where it has fiber into or in front of over 30,000 buildings with this figure rising by 10,000 buildings per year. With UUNET, WorldCom has a ubiquitous IP backbone running at an OC-12 speed (faster than any other IP backbone) with over 1,000 points of presence, 550 of which are outside the U.S.

In addition, internationally, WorldCom is in 27 international financial center markets with either facilities-based local networks or soon to be facilities-based operations in 13 European and Asian countries (including operational networks in Hong Kong and Tokyo where WorldCom received the first facilities based license). These markets include: Amsterdam, Berlin, Brussels, Cologne, Dublin, Dusseldorf, Frankfurt, Geneva, Hamburg, Hanover, London, Milan, Munich, Paris, Stockholm, Stuttgart, Zurich, Hong Kong, Singapore, Tokyo and Sydney. WorldCom is on track to have 35 fully facilities-based operating local networks in major financial centers outside the U.S. by year-end 1998.

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<sup>1</sup> MSA = metropolitan serving area.

WorldCom's approach to international markets has been to first build a data node, then expand to a data network and put in a voice switch. As the traffic demands and/or regulatory climates dictates, WorldCom then puts in fiber, and ultimately, full-blown loop networks. This approach ensures that WorldCom efficiently deploys capital while effectively building its presence among business customers in a given market, first with data offerings, then with voice services. Thus, at various stages of development, cities are in various forms but WorldCom never goes into a city with a data node without the intention of having a fully facilities-based operating local networks.

WorldCom has ownership in all the major undersea fiber cables including its own Gemini project with Cable & Wireless across the Atlantic which has 30 gigabits of capacity, is an integrated marine and land-based network, is a full SDH (synchronous digital hierarchy) and WDM (wave division multiplexing) loop architecture (unlike virtually all existing undersea cables, which are linear PDH systems with only 1 gigabit of capacity) and thus, is especially designed for integrated voice, data, and Internet applications. WorldCom has a pan-European fiber network that connects 32 major business centers in Europe and in addition, WorldCom has complete pan-U.K., pan-Germany, pan-Scandinavian, and pan-France networks. Thus, WorldCom covers Europe from Oslo through Madrid while having ubiquitous networks within the major countries where most of the financial centers exist.

This set of strategic assets positions WorldCom to fully leverage the fastest growing and highest margin parts of the telecom industry—serving corporate customers with managed data/IP networks as opposed to selling plain voice services to consumers which day by day becomes increasingly commodity-like. WorldCom has a true international end-to-end fiber infrastructure with the highest capacity, end-to-end network in the world and it is utilizing cross-border licenses and in-country interconnection agreements to take full advantage of these assets so as to provide global connectivity for business users.

The one asset WorldCom does not own is wireless and we doubt that WorldCom will buy wireless assets anytime in the foreseeable future. Simply speaking, cellular/PCS is not strategic for business customers since one cannot guarantee the integrity of a wireless network in the way that one can for voice or data. Furthermore, most corporate CIOs would rather reimburse employee cellular calls on an individual basis than give a carte-blanc cellular usage plan (especially since individual employees can get great deals themselves on the retail level). Frankly speaking, cellular remains largely a local exchange service and not one that is a critical part of the suite of voice, data, and IP network services that large business customers demand. Hence, we view WorldCom's and MCI's decisions not to pursue wireless assets as being beneficial for shareholder value without impacting an iota the ability to provide global end-to-end connectivity.

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The fact that WorldCom has these assets in place today (versus other carriers who will attempt to combine in order to achieve this footprint) gives WorldCom we believe at least a one to two year head start in the provision of integrated facilities-based end-to-end services. A head start that should bode well for shareholder value creation.

**Figure 2. Current Strategic Position of Leading Telecom Players**

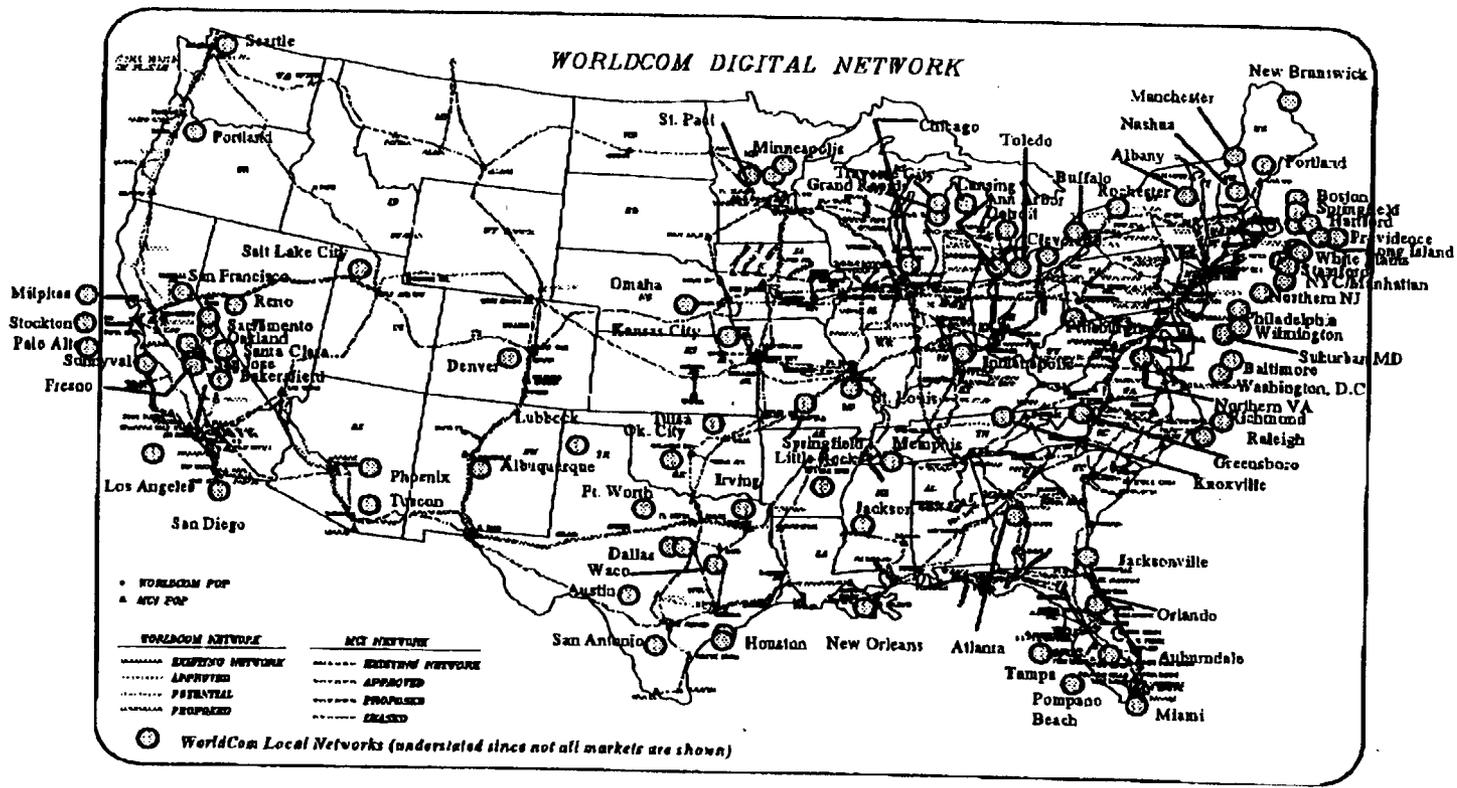
Company	U.S. Fiber Long Distance Network	Nationwide Presence in U.S. Local Markets	Tier 1 IP Peering Network Backbone	Underseas Fiber Cable System	Non-U.S. Local and Pan-Continental Networks in Major Markets
WorldCom	Yes	Yes	Yes	Yes	Yes
AT&T	Yes	Partial	No	Yes	No
Sprint	Yes	No	Yes	Yes	No
RBOCs	No	100% in-region 0% out-of-region	No	No	No
GTE	Partial	Scattered, smaller markets	Yes (BBN)	No	No
Qwest/LCI	Yes	No	No	Partial through swaps	No
Frontier	Partial	No	No	No	No
CLECs	No	Regional clusters or scattered properties	Only ICGX and ICIX	No	No
International PTTs	No	No	No	Yes	100% in-country 0% out-of-country

Source: Smith Barney Inc./Salomon Brothers Inc

**Figure 3. WorldCom Global Network Statistical Summary**

Global Network Statistical Summary (proforma WCOM/Brooks/MCI)	
<b>Total Route Miles</b>	<b>TOTAL</b>
Domestic local	9,683
Domestic long distance [a]	44,619
International local/long distance [b]	1,594
Submarine (underseas)	4,046
<b>Voice Switches</b>	
Domestic local	88
International local	20
Domestic long distance	129
Gateway	12
<b>Equipped Switch Ports</b>	
Domestic local	3,313,232
Domestic long distance	7,685,400
International local/long distance	382,510
<b>Data Switches (Frame, ATM)</b>	
Domestic	864
International	96
<b>Internet Presence</b>	
Points of Presence	1,000+
Modems in Service	600,000
Network Backbone Speed	OC12
Satellite Earth Stations (Dedicated)	45
Satellite Earth Stations (Gateway)	20
<b>Facilities-Based Local Markets (Fiber Networks)</b>	
Domestic (Net of overlapping markets)	100
International [c]	35
<b>Telco Collocation (#LSOs)</b>	<b>345</b>
<b>Active Buildings</b>	
Direct (fiber into)	8,008
Indirect (fiber in front of with dedicated DS3 connection)	24,142
<b>Total</b>	<b>30,150</b>
<p>[a] MCI domestic long distance route miles are on their fiber network only and does not include 15,000 digital microwave route miles.</p> <p>[b] These are route miles wholly contained in countries or between countries outside the U.S.</p> <p>[c] Fully built-out by year-end 1998, of which 40% are currently complete.</p> <p>Source: Smith Barney Inc./Salomon Brothers Inc</p>	

**Figure 4. WorldCom U.S. Local and Long-Distance Fiber Network (including MCI)**



Source: WorldCom