

INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE

ITI Publications Ltd PO Box 1 Chichester West Sussex PO 20 6XR UK • Tel (0243) 683915 Telex 869314 (Tecpub G) Fax (0243) 684168

World Telecommunications Expenditure and Development 1987 to 1995



Executive Summary

Insight into the world's telecommunications markets

Responding quickly to the needs of changing world telecommunications markets is essential to strategic planning.

Market information and intelligence correctly used, can give companies a competitive advantage.

Since its first publication in 1986 ITI's world study "World Telecommunications Expenditure and Development" has become the major research reference work for the industry.

In terms of sales it has become the telecommunications industry's "best seller".

The new study, which forecasts telecommunications spending in more than 50 countries up to 1995, is ready now.

In addition to the already successful features of last year's study, the 1987 edition carries many more.

The study identifies the top 50 markets for telecommunications equipment by value and breakdowns by product area.



Each of the markets has a full narrative detailing developments and PTT changes, including de-regulation and privatisation.

A major section is devoted to market access.

Greater analysis is given to world telephone density.

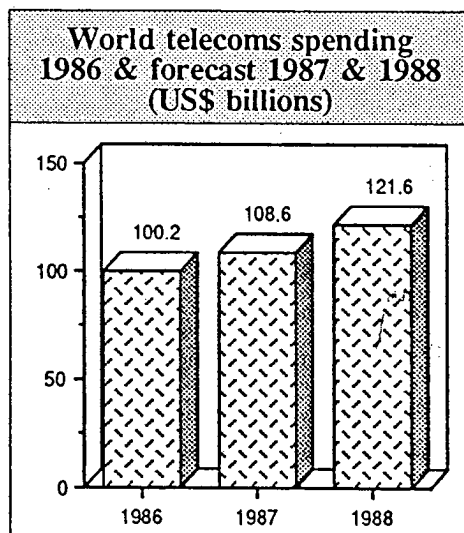
There is a complete new section on demographics in more than 120 telecommunications markets - it is necessary to know the psychology of a market as well as its size in order to market to it successfully.

The network data section has been expanded with, in most cases, comparative data over four years.

World aid is covered in greater detail with spending projections up to 1990.

A major directory of PTTs and telecommunications ministries is included in the study.

The study clearly identifies the growth markets and enables manufacturers to position their own products critically within the markets.



World telecommunications equipment spending in 1986 was US\$100.2 billion which is forecast to increase to US\$108.6 billion in 1987 and US\$121.6 billion in 1988.

World equipment spending in 1990 is expected to reach US\$156.8 billion with further growth to US\$243.3 billion in 1995.

By the year 2000 the study forecasts world telecommunications equipment spending will reach US\$360.8 billion.

Spending patterns will change over the next 15 years with developing countries taking a larger share of the spending as their networks expand.

The 50 top spending countries reviewed in the study, mostly developed countries, are forecast to spend 79 per cent of the world's total telecommunications equipment expenditure in 1987 with the remaining 100-plus countries spending 21 per cent.

By the year 2000 the developing countries are forecast to have 57 per cent of the market within the remaining 43 per cent.

Russia, which replaced Japan as the second largest telecommunications equipment spending market in 1985 is expected to increase spending dramatically:

Russia - total estimated telecommunications equipment spending

1987	US\$9.6 billion
1988	US\$10.9 billion
1990	US\$13.4 billion
1995	US\$23.6 billion

By the turn of the century Russia is expected to equal the spending of the United States which was US\$24 billion in 1986 and is forecast to grow to US\$27 billion in 1990.

The study includes a complete section on forecast spending by Product Sectors.

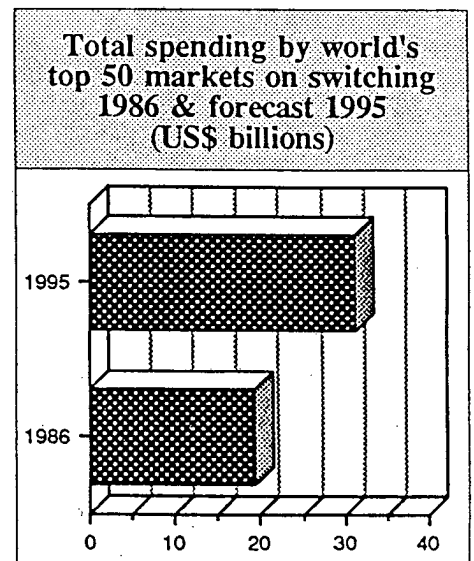
The top 50 markets for cable are expected to increase spending from US\$6.4 billion in 1986 to US\$13.8 billion in 1995.

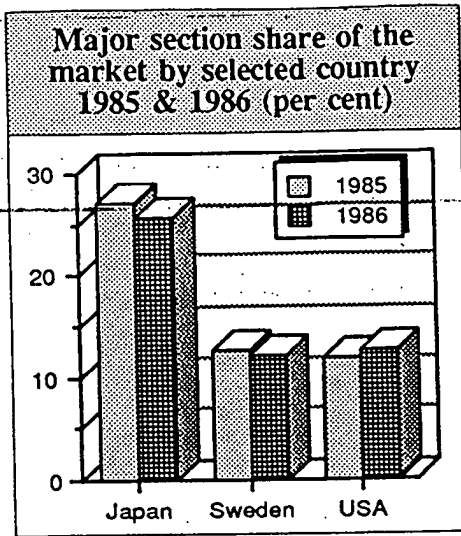
Transmission equipment accounted for US\$6.4 billion spending in the top 50 countries in 1986 and this is forecast to rise to US\$13.8 billion in 1995.

Total spending by the world's top 50 markets on local and toll switching was US\$19.3 billion in 1986 and this is forecast to grow to US\$31.2 billion in 1995.

Other product areas covered by the study are microwave transmission, satellite earth stations, data communications, customer premises equipment, and mobile, cellular and paging equipment.

The study has a major section which shows Japan's share dropped from 27.1 per cent in 1985 to 25.6 per cent in 1986.





Sweden's share also dropped from 12.7 per cent in 1985 to 12.2 per cent in 1986.

The United States, however, increased its share from 11.8 per cent in 1985 to 12.5 per cent in 1986.

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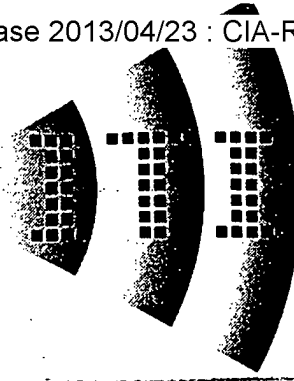
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Telecommunications Market Analysis

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CONTENTS

Pages 1 - 2
WORLD REPORT

RUSSIA - the major telecom market of the 1990s

AFGHANISTAN - Further expansion announced

Pages 3 - 16
COUNTRY SURVEY

SINGAPORE - Sales to forge ahead under US\$1.35 billion plan

All information contained in this issue has been obtained from numerous sources we believe to be reliable, but which we cannot guarantee. Opinions expressed are based on our interpretation of available information, which is subject to change.

The ONLY weekly service analysing world telecommunications expenditure and development

WORLD REPORT

Russia - the major telecom market of the 1990s

Russia will dominate the world telecommunications sales market by 1990 becoming the country that every company wants to break into.

The sales potential is huge. Revised forecasts for the year 1990 predict that Western companies will be selling US\$350 million worth of equipment to the Russians.

In 1985 Russia displaced Japan as the second largest spending market. Projections for the next three years show a sharp upsurge in expenditure.

In 1984 Russia did not even figure in the top ten spending countries in the world. In 1985 it was spending US\$7.2 billion a year on telecommunications equipment.

Last year the figure rose to US\$8.4 billion and this year Russia is budgeted to spend US\$9.8 billion.

By 1990 the expenditure is forecast to be running at US\$13.4 billion.

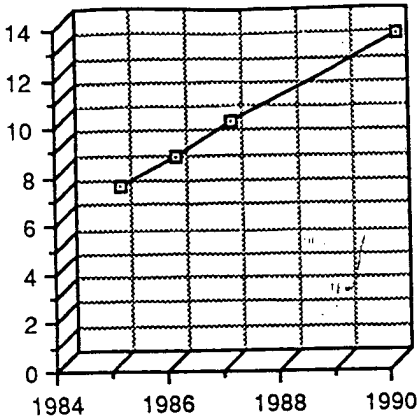
However, while the Russian market will grow rapidly, the United States sales market will remain at a virtual standstill.

Although still the world's biggest spending country, expenditure will rise to US\$27.19 billion - a fairly small increase compared to the 1986 figure of US\$24 billion and this year's budget of US\$24.31 billion.

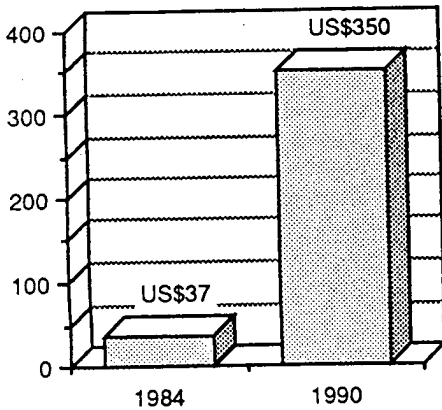
Continued on Page Two

WORLD REPORT

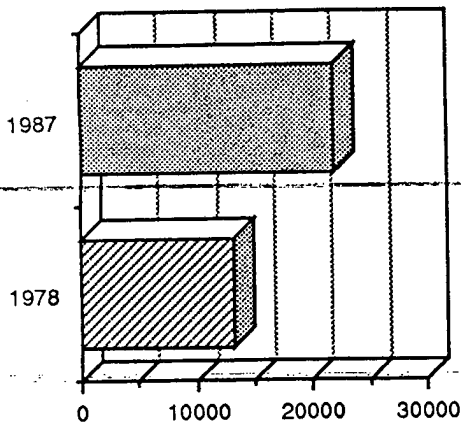
Russia - telecommunications equipment market (US\$ billions)



Russia - growth in imports from the West (US\$ millions)



Afghanistan - telephone growth in Kabul



Marketing managers would be well advised to start looking at the Russian market immediately.

Russian imports of telecommunications equipment are expected to reach US\$5 billion in 1990 with the West accounting for US\$350 million.

This compares with imports of 1984 of only US\$924 million of which the West supplied a mere US\$37 million.

COCOM agreement

The COCOM agreement bans certain telecommunications exports to Russia and other Eastern bloc countries.

However, this is likely to be amended in September 1988, a move which could literally open the floodgates.

The Russian network is typified by old, outdated equipment, corded rotary telephones and poor reliability.

The West's expertise and technical know-how would be welcomed in a country which has made telecommunications a priority area.

Afghanistan - Further expansion announced

Afghanistan's infant telecommunications sector is planning further expansion.

The country has just announced its 1986-1990 Five Year Plan although full details of the expansion programme are not known.

Since 1978, Afghanistan's government has increased the number of telephones installed in Kabul, the capital, from 13,200 to 22,000.

However, communications facilities in rural areas are far sparser. The number of telephone sets currently number 6,600 compared with about 4,500 in 1978.

Although full details of the plan are not revealed, a report issued by the country's official news agency Bakhtar said that before 1978, automatic telecommunications facilities were only installed in Kabul, Balkh, Herat and Kandahar provinces.

Since then the government has extended automatic facilities to Parwan, Jowzjan, Konduz and Nangarhar provinces as well as Pol-e Kholmri City.

Plans call for automatic telephone equipment to be installed in Ghazni province shortly.

Telecommunications growth has so far been slow.

The number of main lines only increased from 22,200 in 1976 to 25,800 in 1980, the last year for which figures are available.

4. KEY OVERSEAS MARKETS

4.1 WORLD OVERVIEW

Market growth

According to International Telecommunications Intelligence, a United Kingdom based research organisation, world spending on telecommunications equipment reached a record \$US90 000m in 1985. In the next five years, the fast growth is expected to continue, reaching a world market of \$US156 800m in real terms in 1990 and a forecast \$US202 700m in 1995.

World expenditure is broken down as follows.

- In 1985, North America's spending was \$US28 200m out of a world market of \$US90 000m and this is forecast to grow to \$US34 600m in 1990 out of a world market of \$US156 800m. Further growth is expected to 1995 when the share will be \$US38 700m out of a world market of \$US202 700m.
- Europe will grow from a 1985 total of \$US27 300m to \$US38 300m in 1990 and \$US43 500m in 1995.
- The Far East, including Japan and China, is expected to grow from \$US13 800m in 1985 to \$US21 400m in 1990 and \$US30 400m in 1995. This growth is fuelled by China's \$US30 000m telecommunications development program.
- Africa, for long lagging behind in telecommunications development, is forecast to grow from \$US2400m in 1985 to \$US11 400m in 1990 and \$US17 200m in 1995.
- The USSR's huge telecommunications expansion plan to install another 10 million telephones by 1990 will mean a projected increase in expenditure from \$US7200m in 1985 to \$US18 600m in 1990 and \$US21 500m in 1995.
- Slower growth is forecast in Middle East markets which accounted for \$US4200m expenditure in 1985. This is expected to rise to only \$US6700m in 1990 and \$US8900m in 1995 (Figure 6).

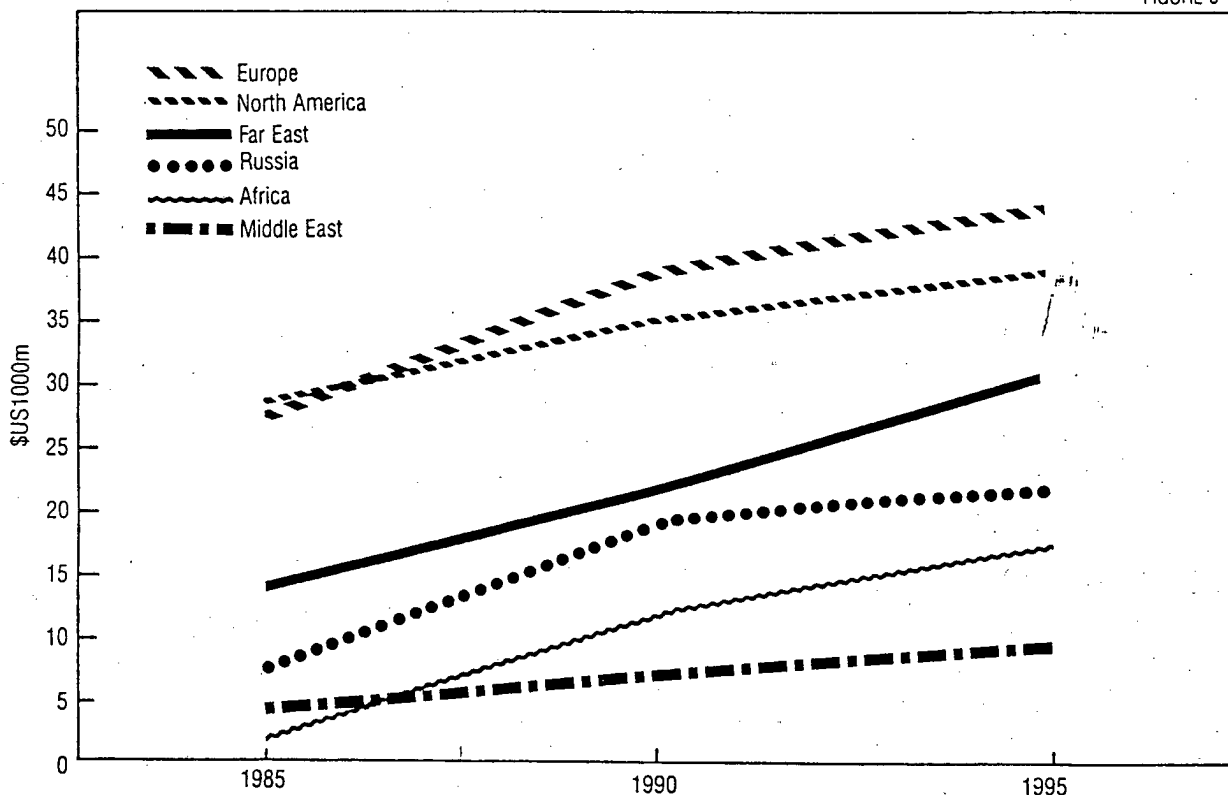
Many of the world markets will level off after 1995 as much of the major change to digital switching and fibre optic transmission will be completed. The developing countries are then expected to come into their own as major world markets with Africa, Asia and South and Central America showing significant growth.

Product shares in world sales of telecommunications equipment in 1985 were (Figure 8):

- switching 31.5 per cent;
- transmission 30.9 per cent;
- terminal equipment 14 per cent;
- mobile radios 9.6 per cent;
- private systems 8.4 per cent; and
- other equipment 5.6 per cent.

WORLD SPENDING ON COMMUNICATIONS EQUIPMENT

FIGURE 6



Source: International Telecommunications Intelligence

TOP 20 WORLD TELECOMMUNICATIONS MARKETS BY VALUE OF EQUIPMENT EXPENDITURE (1985 — \$USm)

USA	24 058
USSR	7200
Japan	6841
Germany, Fed. Rep. of	5604
France	4140
United Kingdom	2450
Italy	2289
Canada	1951
Korea, Rep. of	1391
Spain	1182
China	1055
Australia	977
Brazil	852
South Africa	719
India	585
Sweden	580
Austria	543
Switzerland	542
Mexico	505
Argentina	492

Source: International Telecommunications Intelligence (Fig. 7).

WORLD SHARE OF SWITCHING EQUIPMENT MARKET BY INSTALLED LINES AND ON ORDER AT 31 DEC. 1984

Company	No. of lines	Percentage of world market share
Alcatel	16 738 000	22.5
Northern Telecom	11 258 000	15.1
ITT	10 906 000	14.7
Ericsson	8 074 000	10.9
AT and T	5 800 000	7.8
Siemens	4 208 000	6.2
NEC	3 530 000	4.8
Others		18.0

Source: International Telecommunications Intelligence.

Priority markets

The top 10 exporting countries in 1984 were Japan, FR Germany, Sweden, the USA, the Netherlands, the United Kingdom, France, Canada, Belgium and Italy.

The top 10 importing countries were the USA, the United Kingdom, Canada, FR Germany, the Netherlands, Belgium, Italy, France, Sweden and Japan.

During the past 12 months, telecommunications projects and developments worth more than \$US200 000m have been announced. For instance, India plans to spend \$US45 000m in the 15 years to 2000.

International trade

The OECD estimates that the major growth sector is expected to be in private telephone and data networks incorporating text

capability. Ultimately, these will expand into integrated business information systems culminating in Integrated Services Digital Networks (ISDNs), which are expected to account for 55 per cent of world telecommunications markets by the year 2000.

Growth in international trade is expected to continue to be focused on electrical line, telephonic and telegraphic apparatus. This category includes exchanges, switchboards, telephone apparatus, teleprinter and teletype units.

Total OECD exports of telecommunications equipment increased at a yearly average rate of 8.8 per cent between 1978 to 1983, from \$US5100m to \$US7700m, compared with the growth in manufacturing exports as a whole of 5 per cent annual average. In terms of the four main product categories which constitute 'telecommunications equipment', the high rate of growth in line equipment exports (10.7 per cent annual average over 1978-1983) has been the main contributing factor to total export growth of telecommunications equipment. This item accounts for about 50 per cent of total telecommunications equipment exports and for nearly two-thirds of the growth in export trade. The table below shows the relative contribution of each product category to the total growth in exports of telecommunications equipment:

CONTRIBUTION TO TELECOMMUNICATIONS EQUIPMENT EXPORT GROWTH (1978-1983)

	Percentage contribution	Annual average growth
Line equipment	61.4	10.7
Telephonic/telegraphic transmitters	17.0	6.0
Telephonic/telegraphic receivers	2.3	5.9
Line equipment parts	19.3	8.0
Total telecommunications equipment	100.0	8.8

Source: OECD

The most promising markets for Australian communications equipment can be categorised as follows:

- South-East Asia.
- North America.
- Western Europe/United Kingdom.
- People's Republic of China.
- India.
- New Zealand and the Pacific Islands.

Developing country markets offer longer term opportunities as they upgrade their telecommunications networks to respond to rapid industrialisation.

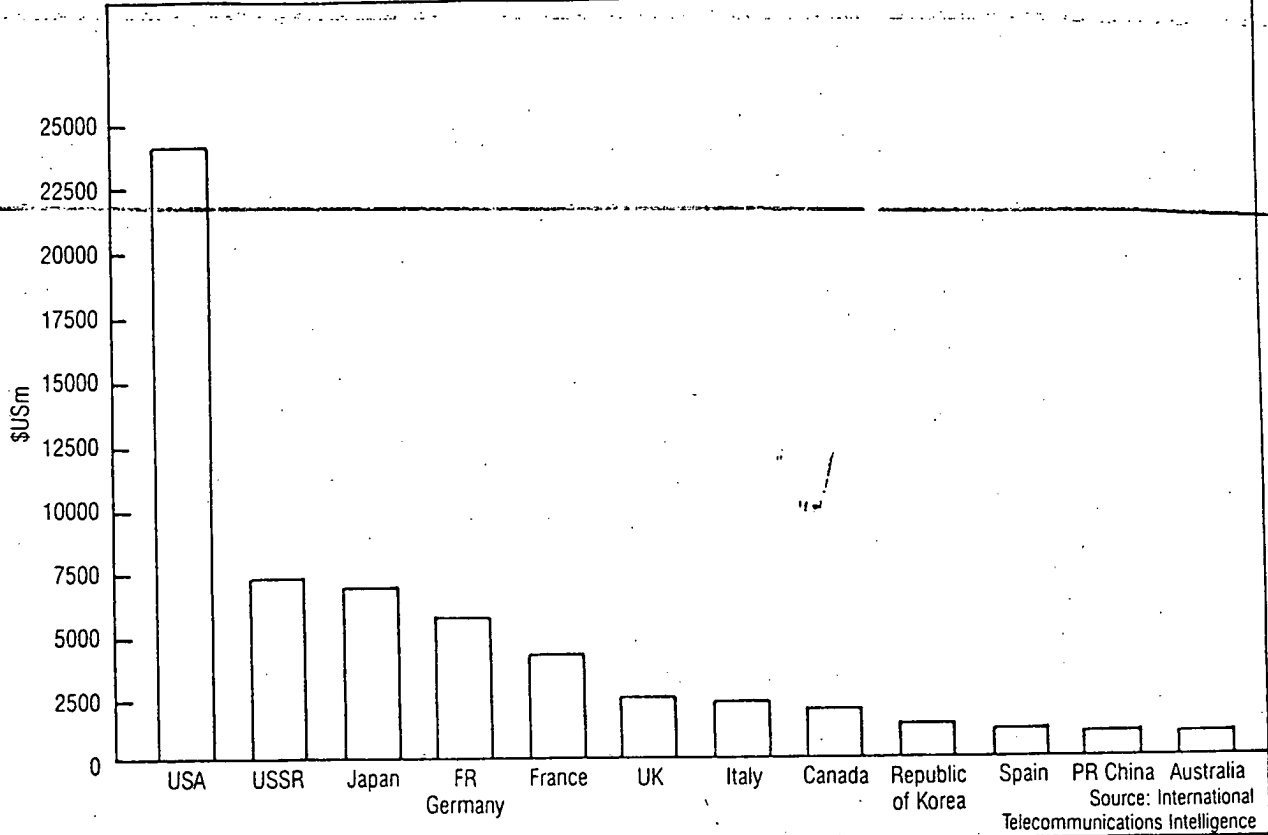
4.2 SOUTH-EAST ASIA

The South-East Asian region is considered a priority market for the following reasons:

- there are basically a limited number of clients (telecommunications authorities), most of whom are aware of Australian technology and have close contact with Telecom Australia;

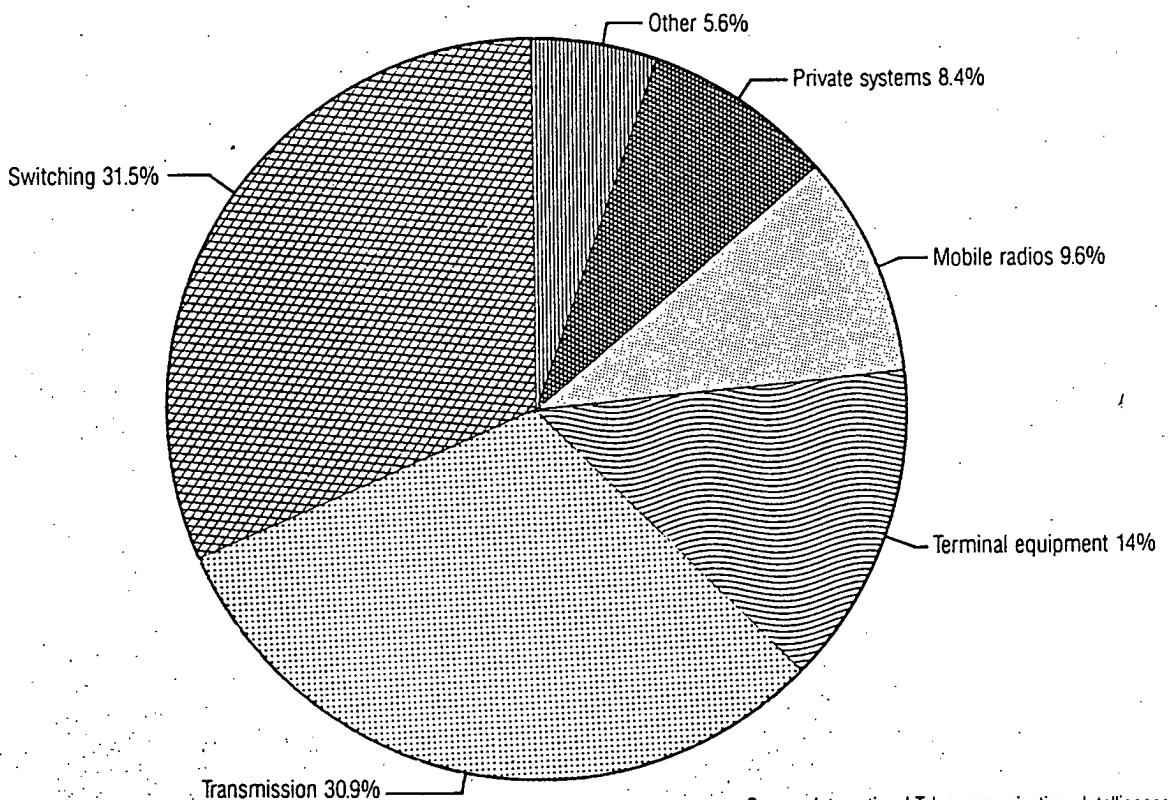
TOP 12 WORLD TELECOMMUNICATIONS MARKETS BY VALUE OF EQUIPMENT EXPENDITURE 1985

FIGURE 7



PRODUCT SHARE IN WORLD SALES OF TELECOMMUNICATIONS EQUIPMENT 1985

FIGURE 8





quitous by 1991 – will, it is argued, need a lot more bandwidth than the pabx can offer, to pull down files, applications and graphics from central stores. Hence Ethernet and the IBM token ring – both well-suited to high bandwidth, bursty traffic – will dominate.

If the PC does spread to many more desktops (see Figure 1), it should also safeguard the market for some modems – especially V22 dial-up modems. But the leased line modem will fall victim to the spread of digital leased lines.

Also beginning to decline after a long and useful life is telex. Though the number of terminals is still growing, traffic is beginning to fall off in some developed countries. The main reason is facsimile.

As Figure 2 shows, facsimile has been growing at an astonishing rate, and most forecasters believe it will continue to do so. In most developed countries, indeed, there will be more facsimile terminals than telex terminals in 1991.

Other technologies may emerge for the first time over the next four years. One which is likely to be highly visible at Geneva is videoconferencing, where impressive technical advances have led to the announcement recently of a number of 64kbps video codecs.

They are still very expensive, but it is clear that, with economies of scale, this could be one of the growth markets of the next five years.

Voice messaging is another promising technology which has failed to make real headway. In the US, however, there are signs that this simple but useful technology, which could end 'telephone tag', is poised for take-off. The spread of DTMF telephones – without which it cannot work – should help.

But the most promising single area

The league of spending nations

You are the marketing director of a large, broadly-based telecommunications vendor. You are looking for new countries in which to sell your products. Where do you turn?

One indicator, ought, perhaps, to be those countries which show most growth potential. Unfortunately, telecommunications continues to be

dominated by protectionism, and some countries are so difficult to penetrate that it is scarcely worth the effort, however large the market.

All the same, it is interesting to see how one analyst – ITI – believes the league table of telecommunications nations will change, and where the most growth will be.

The table on the left shows the top twelve spending nations in 1986. The table on the right shows which countries, amongst the top 50 current spenders, are expected to grow fastest over the next five years.

Country	1986 (billions of dollars)
USA	24.01
USSR	8.40
Japan	7.08
Germany	5.89
France	4.48
Italy	3.92
UK	3.15
Canada	1.89
China	1.49
South Korea	1.42

Country	1986 (billions of dollars)	1991 (billions of dollars)
USSR	8.40	13.40
Italy	3.92	6.73
China	1.49	2.44
Spain	1.40	2.15
India	1.31	2.28
Mexico	0.85	1.31
Pakistan	0.29	0.54
Greece	0.29	0.50
Turkey	0.26	0.40
Portugal	0.12	0.23

in telecommunications today is probably mobile communications.

Five years ago, this somewhat unglamorous technology was largely confined to closed user groups such as the police, the military, taxi fleets, airlines and the like. In the intervening years, it has been transformed by the arrival of cellular radio, and in the next four years, the expansion of mobile communications, most pundits believe, will not slow down.

As Table 1 shows, Dataquest believes that cellular radio will overtake digital switching as a money earner in the USA by 1991. But other mobile technologies will complicate the picture, in particular the cheap digital cordless phones which could enable people to own a telephone

number instead of a telephone and make calls wherever they are. Manufacturers of pabxs – Ericsson and Motorola, for instance – are expected to boost the ailing pabx market by announcing so-called 'cordless pabxs'. And, in the skies, land-based mobile communications based on satellites should be well underway by 1990.

Cellular radio itself, of course, will be massively boosted by the establishment of a European digital standard. However, this, and many other, new mobile technologies will probably not be fully underway until 1991. They will only become really big revenue earners in the years to 1995. But even analysts and journalists are wary of making predictions about Geneva 1995. . . .

International Telecommunications Intelligence

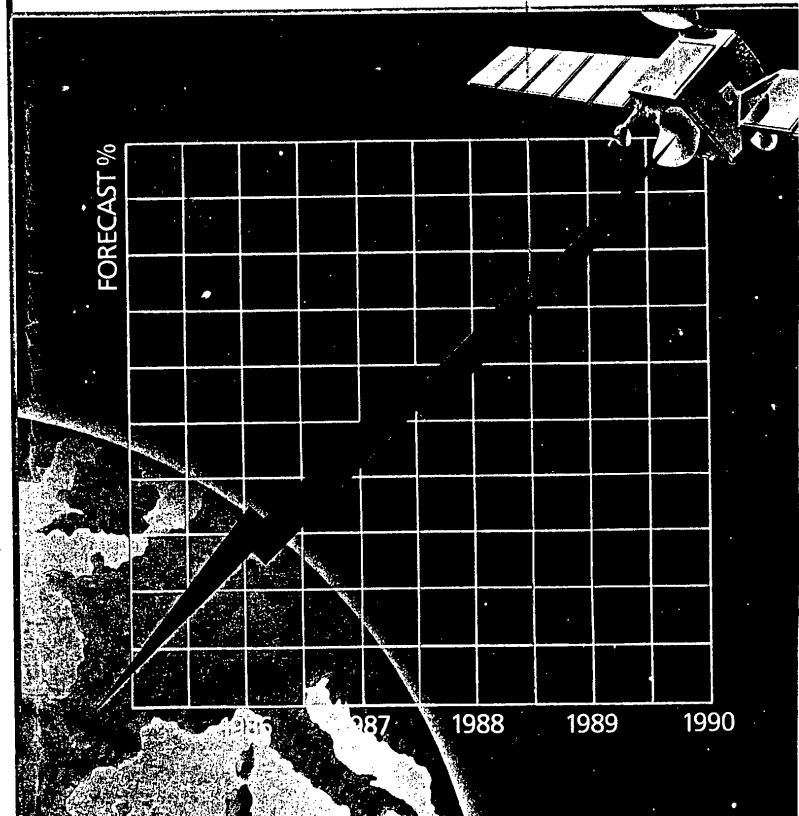


Other telecommunications market reports currently available are:

- Belgium £295 US\$445
- Italy £295 US\$445
- Turkey £295 US\$445
- Canada £295 US\$445
- Saudi Arabia £295 US\$445
- Finland £295 US\$445
- Netherlands £295 US\$445
- Switzerland £295 US\$445
- Australia £295 US\$445
- China £295 US\$445
- France £295 US\$445
- Portugal £295 US\$445
- United Kingdom £295 US\$445
- Egypt £295 US\$445
- Brazil (Update Report)
£75 US\$120
- Greece £295 US\$445
- Spain £295 US\$445
- West Germany £295 US\$445
- Kuwait £295 US\$445

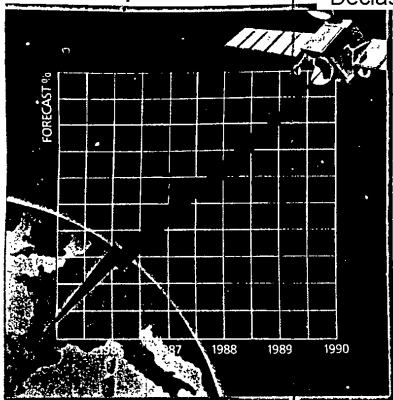
World telecommunications expenditure and development

□ □ □ □ THE NEXT FIVE YEARS □ □ □ □



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world spending on telecommunications equipment reached US\$90 billion in 1985.

□ In the next five years the fast growth is expected to continue to reach a world market of US\$156.8 billion in 1990 and a forecast US\$202.7 billion in 1995.

□ A major study on world telecommunications markets over the next five years has been undertaken by **International Telecommunications Intelligence** – one of the world's leading telecommunications market analysts.

□ The study looks at more than 50 of the major telecommunications markets in detail and highlights growth areas both by market size and production areas.

□ In its findings the study analyses how the world expenditure is broken down:

□ In 1985 North America's spending

was US\$28.2 billion out of a world market of US\$90 billion and this is forecast to grow to US\$34.6 billion in 1990 out of a world market of US\$156.8 billion and further growth is expected up to 1995 when the share will be US\$38.7 billion out of a world market of US\$202.7 billion.

□ The study reveals some interesting growth areas. Europe will grow from a 1985 total of US\$27.3 billion to US\$38.3 billion in 1990 and US\$43.5 billion in 1995.

□ The Far East including Japan and China is expected to grow from US\$13.8 billion in 1985 to US\$21.4 billion in 1990 and US\$30.4 billion in 1995. This growth is fuelled by China's US\$30 billion telecommunications development programme.

□ Africa, for long lagging behind in telecommunications development, is forecast to grow from US\$2.4 billion in 1985 to US\$11.4 billion in 1990 and US\$17.2 billion in 1995.

□ Russia's huge telecommunications expansion plan in which it plans to install a further 10 million telephones by 1990 will give rise to an expected expenditure from US\$7.2 billion in 1985 to US\$18.6 billion in 1990 and US\$21.5 billion in 1995.

□ Disappointing growth is forecast in Middle East markets which accounted for US\$4.2 billion expenditure in 1985 and is set to rise only to US\$6.7 billion in 1990 and US\$8.9 billion in 1995.

□ The study points out that many of the world markets will level off after 1995 as much of the major change to digital switching and fibre optic transmission will be completed.

□ The developing countries are then expected to come into their own as major world markets with Africa, Asia and South and Central America showing significant growth.

Top 20 world telecommunications markets by value of equipment expenditure – 1985 (US\$ millions)

United States	24,058
Russia	7,200
Japan	6,841
West Germany	5,604
France	4,140
United Kingdom	2,450
Italy	2,289
Canada	1,951
South Korea	1,391
Spain	1,182
China	1,055
Australia	977
Brazil	852
South Africa	719
India	585
Sweden	580
Austria	543
Switzerland	542
Mexico	505
Argentina	492

al telecommunications market – of this total 22 per cent of the countries have more than a million telephones and 40 per cent have fewer than 50,000 telephones.

□ The study details the telephone density of the world's telecommunications markets with the lowest being Rwanda (0.9 telephones per 100 population) followed by Burma and Zaire (0.11 per 100 population).

□ Some 25 countries use 85 per cent of the total world international voice traffic and virtually all the data communications traffic.

□ The study examines the product share in world sales of telecommunications equipment which in 1985 were: Switching 31.5 per cent; transmission 30.9 per cent; terminal equipment 14.0 per cent; mobile radios 9.6 per cent; private systems 8.4 per cent, and other equipment 5.6 per cent.

□ Analysis is made in the study of world trade in telecommunications equipment with the top ten exporting countries in 1984 being Japan, West Germany, Sweden, United States, Netherlands, United Kingdom, France, Canada, Belgium and Italy.

□ The top ten importing countries were: United States, United Kingdom, Canada, West Germany, Netherlands, Belgium, Italy, France, Sweden and Japan.

□ The major companies involved in world telecommunications markets still remains complicated picture of 'free' and 'closed' trading areas due to protectionist barriers preventing market access to some foreign countries.

□ The situation is changing and the study reviews the current situation of competitive access worldwide and future trends.

□ An important part of trading with developing countries is payment. The study looks at the current aid situation in the telecommunications sector, long-term country loans and supplier credits.

□ The study also covers the important joint venture agreement situation.

□ During the last 12 months telecommunications projects and developments worth more than US\$200 billion have been announced and a complete survey of these projects is included in the study.

□ Many of these are ongoing projects covering many years and are vital information to manufacturers. For instance India's plan is to spend US\$45 billion in the 15 years up to the year 2000.

□ A comprehensive directory including details of every world PTT or operator is part of the study together with international organisations.

□ The study also contains a large statistical section and is illustrated with numerous graphs and charts.

World share of switching equipment market by installed lines and on order as at 31st December, 1984

Company	No. of lines	Percentage of world market share
Alcatel	16,738,000	22.5
Northern Telecom	11,258,000	15.1
ITT	10,906,000	14.7
Ericsson	8,074,000	10.9
AT and T	5,800,000	7.8
Siemens	4,208,000	6.2
NEC	3,530,000	4.8
Others		18.0

"World Telecommunications Expenditure and Development – the next five years 1986 to 1990" is a major reference work and an essential research document for every management executive in the telecommunications industry. It is published by International Telecommunications Intelligence.

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WORLDWIDE TELECOMMUNICATIONS DEVELOPMENTS	406
Projects announced July to December 1985	406
Projects announced January to June 1986	414
WORLDWIDE TELECOMMUNICATIONS ADMINISTRATIONS AND OPERATORS DIRECTORY	430
METHODOLOGY	454
China	
Korea	
Malaysia	
Philippines	
Singapore	
Taiwan	
Thailand	
Vietnam	
South Korea	
Japan	
West Germany	
France	
West Germany	
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France	
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West Germany	
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West Germany	
France	
West Germany	
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West Germany	
France	
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CONTENTS

INTRODUCTION

THE WORLD MARKET

Graph - World market for telecommunications equipment by major geographic areas - 1989

Graph - Market for telecommunications equipment in the five major Western European countries 1988

WORLD TELECOMMUNICATIONS EXPENDITURE AND DEVELOPMENT

Top 10 Western European countries

Top 10 Europe (including Turkey)

Top 10 Europe (excluding Turkey)

THE TOP 20 MARKETS FOR EQUIPMENT BY PRODUCT SECTOR

Graph - Top 20 markets for telecommunications equipment by product sector 1988

THE NEXT FIVE YEARS 1986-1990

Top 20 markets for transmission equipment - 1989

Top 20 markets for switching equipment - 1989

Top 20 markets for telephony and data services - 1989

Top 20 markets for mobile communications equipment - 1989

Top 20 markets for telecommunications equipment - 1989

Top 20 markets for telephony and data services - 1989

Top 20 markets for mobile communications equipment - 1989

Top 20 markets for telecommunications equipment - 1989

Top 20 markets for telephony and data services - 1989

Top 20 markets for mobile communications equipment - 1989

Top 20 markets for telecommunications equipment - 1989

Contents

1. Introduction

2. World Telecommunications Expenditure and Development

3. The Top 20 Markets for Equipment by Product Sector

4. The Next Five Years 1986-1990

5. Appendix

6. Glossary

7. Bibliography

8. Index

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CONTENTS

	Page No.
INTRODUCTION	1
THE WORLD MARKET	2
Graph - World market for telecommunications equipment by major geographic areas - 1990	2
Graph - Market for telecommunications equipment in the five major Eastern European countries 1986	3
World's top 50 telecommunications equipment markets - 1986	5
World's top 50 telecommunications equipment markets - 1990	6
Top 10 Europe (including Eastern Europe) - 1986	7
Top 10 Europe (including Eastern Europe) - 1990	7
Top 10 Western Europe - 1986	8
Top 10 Western Europe - 1990	8
THE TOP 50 MARKETS FOR EQUIPMENT BY PRODUCT SECTOR	9
Graph - Top 50 markets for telecommunications equipment by product sector 1986 and 1990	9
Top 50 markets for cable (including fibre optic) - 1986	11
Top 50 markets for cable (including fibre optic) - 1990	12
Top 50 markets for transmission equipment - 1986	13
Top 50 markets for transmission equipment - 1990	14
Top 50 markets for local & toll switching equipment - 1986	15
Top 50 markets for local & toll switching equipment - 1990	16
Top 50 markets for microwave equipment - 1986	17
Top 50 markets for microwave equipment - 1990	18
Top 50 markets for satellite earth stations - 1986	19
Top 50 markets for satellite earth stations - 1990	20
Top 50 markets for mobile, cellular and paging - 1986	21
Top 50 markets for mobile, cellular and paging - 1990	22
Top 50 markets for data communications equipment - 1986	23
Top 50 markets for data communications equipment - 1990	24
Top 50 markets for customer premises equipment - 1986	25
Top 50 markets for customer premises equipment - 1990	26
Top 50 markets for telephone sets and key systems - 1986	27
Top 50 markets for telephone sets and key systems - 1990	28
Top 50 markets for PABXs - 1986	29
Top 50 markets for PABXs - 1990	30
Summary of expenditure by product sector - 1986	31
Summary of expenditure by product sector - 1990	41
WORLD'S TOP 50 TELECOMMUNICATIONS EQUIPMENT MARKETS	
United States	51
Market prospect	51
Actual expenditure and projections	51
The Market	51
Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990	51
Operating Structure	53
Market Competition	53
Breakdown of expenditure by product sector forecast 1986 and 1990	54
Graph - Growth of expenditure by selected product sector forecast 1986 and 1990	54

Russia	55
Market prospect	55
Actual expenditure and projections	55
The Market	55
Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990	55
PTT Structure	56
Market Competition	57
Exports of telecommunications equipment to Russia	57
Breakdown of expenditure by product sector forecast 1986 and 1990	58
Graph - Growth of expenditure by selected product sector forecast 1986 and 1990	58
Japan	59
Market prospect	59
Actual expenditure and projections	59
The Market	59
Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990	59
Operating Structure	60
Market Competition	60
Breakdown of expenditure by product sector forecast 1986 and 1990	63
Graph - Growth of expenditure by selected product sector forecast 1986 and 1990	63
West Germany	64
Market prospect	64
Actual expenditure and projections	64
The Market	64
Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990	64
PTT Structure	65
Market Competition	65
Breakdown of expenditure by product sector forecast 1986 and 1990	67
Graph - Growth of expenditure by selected product sector forecast 1986 and 1990	67
France	68
Market prospect	68
Actual expenditure and projections	68
The Market	68
Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990	68
PTT Structure	69
Market Competition	69
Breakdown of expenditure by product sector forecast 1986 and 1990	70
Graph - Growth of expenditure by selected product sector forecast 1986 and 1990	70
Italy	71
Market prospect	71
Actual expenditure and projections	71
The Market	71
Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990	71
PTT Structure	72
Market Competition	72
Breakdown of expenditure by product sector forecast 1986 and 1990	73
Graph - Growth of expenditure by selected product sector forecast 1986 and 1990	73

United Kingdom	74
1 Market prospect	74
2 Actual expenditure and projections	74
3 The Market	74
Graph - Total market for telecommunications equipment	74
1985 and forecast 1986, 1987, 1990	74
Operating Structure	75
Market Competition	76
Breakdown of expenditure by product sector forecast 1986 and 1990	77
Graph - Growth of expenditure by selected product sector forecast	77
1986 and 1990	77
Canada	78
1 Market prospect	78
2 Actual expenditure and projections	78
3 The Market	78
Graph - Total market for telecommunications equipment	78
1985 and forecast 1986, 1987, 1990	78
Operating Structure	79
Market Competition	79
Breakdown of expenditure by product sector forecast 1986 and 1990	81
Graph - Growth of expenditure by selected product sector forecast	81
1986 and 1990	81
China	82
1 Market prospect	82
2 Actual expenditure and projections	82
3 The Market	82
Graph - Total market for telecommunications equipment	82
1985 and forecast 1986, 1987, 1990	82
Operating Structure	83
Market Competition	83
Breakdown of expenditure by product sector forecast 1986 and 1990	86
Graph - Growth of expenditure by selected product sector forecast	86
1986 and 1990	86
South Korea	87
1 Market prospect	87
2 Actual expenditure and projections	87
3 The Market	87
Graph - Total market for telecommunications equipment	87
1985 and forecast 1986, 1987, 1990	87
Operating Structure	88
Market Competition	88
Breakdown of expenditure by product sector forecast 1986 and 1990	89
Graph - Growth of expenditure by selected product sector forecast	89
1986 and 1990	89
Spain	90
1 Market prospect	90
2 Actual expenditure and projections	90
3 The Market	90
Graph - Total market for telecommunications equipment	90
1985 and forecast 1986, 1987, 1990	90
Operating Structure	91
Market Competition	91
Breakdown of expenditure by product sector forecast 1986 and 1990	93
Graph - Growth of expenditure by selected product sector forecast	93
1986 and 1990	93

Switzerland	94
1 Market prospect	94
2 Actual expenditure and projections	94
3 The Market	94
Graph - Total market for telecommunications equipment	94
1985 and forecast 1986, 1987, 1990	94
PTT Structure	95
Market Competition	95
Breakdown of expenditure by product sector forecast 1986 and 1990	97
Graph - Growth of expenditure by selected product sector forecast	97
1986 and 1990	97
India	98
1 Market prospect	98
2 Actual expenditure and projections	98
3 The Market	98
Graph - Total market for telecommunications equipment	98
1985 and forecast 1986, 1987, 1990	98
PTT Structure	99
Market Competition	99
Breakdown of expenditure by product sector forecast 1986 and 1990	101
Graph - Growth of expenditure by selected product sector forecast	101
1986 and 1990	101
Australia	102
1 Market prospect	102
2 Actual expenditure and projections	102
3 The Market	102
Graph - Total market for telecommunications equipment	102
1985 and forecast 1986, 1987, 1990	102
Operating Structure	103
Market Competition	103
Breakdown of expenditure by product sector forecast 1986 and 1990	105
Graph - Growth of expenditure by selected product sector forecast	105
1986 and 1990	105
South Africa	106
1 Market prospect	106
2 Actual expenditure and projections	106
3 The Market	106
Graph - Total market for telecommunications equipment	106
1985 and forecast 1986, 1987, 1990	106
PTT Structure	107
Market Competition	107
Breakdown of expenditure by product sector forecast 1986 and 1990	108
Graph - Growth of expenditure by selected product sector forecast	108
1986 and 1990	108
Brazil	109
1 Market prospect	109
2 Actual expenditure and projections	109
3 The Market	109
Graph - Total market for telecommunications equipment	109
1985 and forecast 1986, 1987, 1990	109
PTT Structure	110
Market Competition	110
Breakdown of expenditure by product sector forecast 1986 and 1990	111
Graph - Growth of expenditure by selected product sector forecast	111
1986 and 1990	111

Mexico 112

- Market prospect 112
- Actual expenditure and projections 112
- The Market 112
 - Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990 112
 - PTT Structure 113
 - Market Competition 113
 - Breakdown of expenditure by product sector forecast 1986 and 1990 114
 - Graph - Growth of expenditure by selected product sector forecast 1986 and 1990 114

Sweden 115

- Market prospect 115
- Actual expenditure and projections 115
- The Market 115
 - Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990 115
 - Swedish Telecommunications Authority (Televerket) - Main areas of planned expenditure 1988 to 1990 116
 - PTT Structure 117
 - Market Competition 117
 - Breakdown of expenditure by product sector forecast 1986 and 1990 118
 - Graph - Growth of expenditure by selected product sector forecast 1986 and 1990 118

Austria 119

- Market prospect 119
- Actual expenditure and projections 119
- The Market 119
 - Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990 119
 - PTT Structure 120
 - Market Competition 120
 - Breakdown of expenditure by product sector forecast 1986 and 1990 121
 - Graph - Growth of expenditure by selected product sector forecast 1986 and 1990 121

Taiwan 122

- Market prospect 122
- Actual expenditure and projections 122
- The Market 122
 - Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990 122
 - PTT Structure 123
 - Market Competition 123
 - Breakdown of expenditure by product sector forecast 1986 and 1990 124
 - Graph - Growth of expenditure by selected product sector forecast 1986 and 1990 124

Indonesia 125

- Market prospect 125
- Actual expenditure and projections 125
- The Market 125
 - Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990 125
 - PTT Structure 126
 - Market Competition 126
 - Breakdown of expenditure by product sector forecast 1986 and 1990 127
 - Graph - Growth of expenditure by selected product sector forecast 1986 and 1990 127

Argentina 128

- Market prospect 128
- Actual expenditure and projections 128
- The Market 128
 - Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990 128
 - PTT Structure 129
 - Market Competition 129
 - Breakdown of expenditure by product sector forecast 1986 and 1990 130
 - Graph - Growth of expenditure by selected product sector forecast 1986 and 1990 130

Saudi Arabia 131

- Market prospect 131
- Actual expenditure and projections 131
- The Market 131
 - Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990 131
 - PTT Structure 132
 - Market Competition 132
 - Breakdown of expenditure by product sector forecast 1986 and 1990 134
 - Graph - Growth of expenditure by selected product sector forecast 1986 and 1990 134

Netherlands 135

- Market prospect 135
- Actual expenditure and projections 135
- The Market 135
 - Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990 135
 - PTT Structure 136
 - Market Competition 136
 - Breakdown of expenditure by product sector forecast 1986 and 1990 137
 - Graph - Growth of expenditure by selected product sector forecast 1986 and 1990 137

Hong Kong 138

- Market prospect 138
- Actual expenditure and projections 138
- The Market 138
 - Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990 138
 - Operating Structure 137
 - Market Competition 137
 - Breakdown of expenditure by product sector forecast 1986 and 1990 139
 - Graph - Growth of expenditure by selected product sector forecast 1986 and 1990 139

Norway 141

- Market prospect 141
- Actual expenditure and projections 141
- The Market 141
 - Graph - Total market for telecommunications equipment 1985 and forecast 1986, 1987, 1990 141
 - PTT Structure 142
 - Market Competition 142
 - Breakdown of expenditure by product sector forecast 1986 and 1990 143
 - Graph - Growth of expenditure by selected product sector forecast 1986 and 1990 143

Belgium	144
Market prospect	144
Actual expenditure and projections	144
The Market	144
Graph - Total market for telecommunications equipment	144
1985 and forecast 1986, 1987, 1990	144
RTT's planned development of switching systems	145
Growth in number of subscribers by selected RTT services	145
PTT Structure	146
Market Competition	146
Breakdown of expenditure by product sector forecast 1986 and 1990	147
Graph - Growth of expenditure by selected product sector forecast	147
1986 and 1990	147
East Germany	148
Market prospect	148
Actual expenditure and projections	148
The Market	148
Graph - Total market for telecommunications equipment	148
1985 and forecast 1986, 1987, 1990	148
PTT Structure	149
Market Competition	149
Breakdown of expenditure by product sector forecast 1986 and 1990	150
Graph - Growth of expenditure by selected product sector forecast	150
1986 and 1990	150
Venezuela	151
Market prospect	151
Actual expenditure and projections	151
The Market	151
Graph - Total market for telecommunications equipment	151
1985 and forecast 1986, 1987, 1990	151
PTT Structure	152
Market Competition	152
Breakdown of expenditure by product sector forecast 1986 and 1990	153
Graph - Growth of expenditure by selected product sector forecast	153
1986 and 1990	153
Singapore	154
Market prospect	154
Actual expenditure and projections	154
The Market	154
Graph - Total market for telecommunications equipment	154
1985 and forecast 1986, 1987, 1990	154
PTT Structure	155
Market Competition	155
Breakdown of expenditure by product sector forecast 1986 and 1990	156
Graph - Growth of expenditure by selected product sector forecast	156
1986 and 1990	156
Finland	157
Market prospect	157
Actual expenditure and projections	157
The Market	157
Graph - Total market for telecommunications equipment	157
1985 and forecast 1986, 1987, 1990	157
Operating Structure	158
Market Competition	158
Breakdown of expenditure by product sector forecast 1986 and 1990	160
Graph - Growth of expenditure by selected product sector forecast	160
1986 and 1990	160

Pakistan	161
Market prospect	161
Actual expenditure and projections	161
The Market	161
Graph - Total market for telecommunications equipment	161
1985 and forecast 1986, 1987, 1990	161
PTT Structure	162
Market Competition	162
Breakdown of expenditure by product sector forecast 1986 and 1990	163
Graph - Growth of expenditure by selected product sector forecast	163
1986 and 1990	163
Greece	164
Market prospect	164
Actual expenditure and projections	164
The Market	164
Graph - Total market for telecommunications equipment	164
1985 and forecast 1986, 1987, 1990	164
Operating Structure	165
Market Competition	165
Breakdown of expenditure by product sector forecast 1986 and 1990	167
Graph - Growth of expenditure by selected product sector forecast	167
1986 and 1990	167
Turkey	168
Market prospect	168
Actual expenditure and projections	168
The Market	168
Graph - Total market for telecommunications equipment	168
1985 and forecast 1986, 1987, 1990	168
Plan targets to 1993	169
Planned equipment purchases to 1990	169
Total demand and supply	169
PTT Structure	169
The Market	170
Breakdown of expenditure by product sector forecast 1986 and 1990	171
Graph - Growth of expenditure by selected product sector forecast	171
1986 and 1990	171
Denmark	172
Market prospect	172
Actual expenditure and projections	172
The Market	172
Graph - Total market for telecommunications equipment	172
1985 and forecast 1986, 1987, 1990	172
Operating Structure	173
Market Competition	173
Breakdown of expenditure by product sector forecast 1986 and 1990	174
Graph - Growth of expenditure by selected product sector forecast	174
1986 and 1990	174
New Zealand	175
Market prospect	175
Actual expenditure and projections	175
The Market	175
Graph - Total market for telecommunications equipment	175
1985 and forecast 1986, 1987, 1990	175
PTT Structure	176
Market Competition	176
Breakdown of expenditure by product sector forecast 1986 and 1990	177
Graph - Growth of expenditure by selected product sector forecast	177
1986 and 1990	177

Poland	178
Market prospect	178
Actual expenditure and projections	178
The Market	178
Graph - Total market for telecommunications equipment	178
1985 and forecast 1986, 1987, 1990	178
PTT Structure	179
Market Competition	179
Breakdown of expenditure by product sector forecast 1986 and 1990	180
Graph - Growth of expenditure by selected product sector forecast	180
1986 and 1990	180
Bangladesh	181
Market prospect	181
Actual expenditure and projections	181
The Market	181
Graph - Total market for telecommunications equipment	181
1985 and forecast 1986, 1987, 1990	181
PTT Structure	182
Market Competition	182
Breakdown of expenditure by product sector forecast 1986 and 1990	184
Graph - Growth of expenditure by selected product sector forecast	184
1986 and 1990	184
Egypt	185
Market prospect	185
Actual expenditure and projections	185
The Market	185
Graph - Total market for telecommunications equipment	185
1985 and forecast 1986, 1987, 1990	185
Operating Structure	186
Market Competition	186
Breakdown of expenditure by product sector forecast 1986 and 1990	188
Graph - Growth of expenditure by selected product sector forecast	188
1986 and 1990	188
Hungary	189
Market prospect	189
Actual expenditure and projections	189
The Market	189
Graph - Total market for telecommunications equipment	189
1985 and forecast 1986, 1987, 1990	189
PTT Structure	190
Market Competition	190
Breakdown of expenditure by product sector forecast 1986 and 1990	191
Graph - Growth of expenditure by selected product sector forecast	191
1986 and 1990	191
Iran	192
Market prospect	192
Actual expenditure and projections	192
The Market	192
Graph - Total market for telecommunications equipment	192
1985 and forecast 1986, 1987, 1990	192
PTT Structure	193
The Market	193
Breakdown of expenditure by product sector forecast 1986 and 1990	194
Graph - Growth of expenditure by selected product sector forecast	194
1986 and 1990	194

Yugoslavia	195
Market prospect	195
Actual expenditure and projections	195
The Market	195
Graph - Total market for telecommunications equipment	195
1985 and forecast 1986, 1987, 1990	195
PTT Structure	196
Market Competition	196
Breakdown of expenditure by product sector forecast 1986 and 1990	197
Graph - Growth of expenditure by selected product sector forecast	197
1986 and 1990	197
Czechoslovakia	198
Market prospect	198
Actual expenditure and projections	198
The Market	198
Graph - Total market for telecommunications equipment	198
1985 and forecast 1986, 1987, 1990	198
PTT Structure	199
Market Competition	199
Breakdown of expenditure by product sector forecast 1986 and 1990	200
Graph - Growth of expenditure by selected product sector forecast	200
1986 and 1990	200
Portugal	201
Market prospect	201
Actual expenditure and projections	201
The Market	201
Graph - Total market for telecommunications equipment	201
1985 and forecast 1986, 1987, 1990	201
Operating Structure	202
Market Competition	202
Breakdown of expenditure by product sector forecast 1986 and 1990	203
Graph - Growth of expenditure by selected product sector forecast	203
1986 and 1990	203
Algeria	204
Market prospect	204
Actual expenditure and projections	204
The Market	204
Graph - Total market for telecommunications equipment	204
1985 and forecast 1986, 1987, 1990	204
PTT Structure	205
Market Competition	205
Breakdown of expenditure by product sector forecast 1986 and 1990	206
Graph - Growth of expenditure by selected product sector forecast	206
1986 and 1990	206
Syria	207
Market prospect	207
Actual expenditure and projections	207
The Market	207
Graph - Total market for telecommunications equipment	207
1985 and forecast 1986, 1987, 1990	207
PTT Structure	208
Market Competition	208
Breakdown of expenditure by product sector forecast 1986 and 1990	209
Graph - Growth of expenditure by selected product sector forecast	209
1986 and 1990	209

United Arab Emirates	210
Market prospect	210
Actual expenditure and projections	210
The Market	210
Graph - Total market for telecommunications equipment	210
1985 and forecast 1986, 1987, 1990	210
Operating Structure	211
Market Competition	211
Breakdown of expenditure by product sector forecast 1986 and 1990	212
Graph - Growth of expenditure by selected product sector forecast	212
1986 and 1990	212
Morocco	213
Market prospect	213
Actual expenditure and projections	213
The Market	213
Graph - Total market for telecommunications equipment	213
1985 and forecast 1986, 1987, 1990	213
PTT Structure	214
Market Competition	214
Breakdown of expenditure by product sector forecast 1986 and 1990	215
Graph - Growth of expenditure by selected product sector forecast	215
1986 and 1990	215
Peru	216
Market prospect	216
Actual expenditure and projections	216
The Market	216
Graph - Total market for telecommunications equipment	216
1985 and forecast 1986, 1987, 1990	216
Operating Structure	217
Market Competition	217
Breakdown of expenditure by product sector forecast 1986 and 1990	219
Graph - Growth of expenditure by selected product sector forecast	219
1986 and 1990	219
Kuwait	220
Market prospect	220
Actual expenditure and projections	220
The Market	220
Graph - Total market for telecommunications equipment	220
1985 and forecast 1986, 1987, 1990	220
Operating Structure	221
The Market	221
Breakdown of expenditure by product sector forecast 1986 and 1990	222
Graph - Growth of expenditure by selected product sector forecast	222
1986 and 1990	222
WORLD BANK TELECOMMUNICATIONS LOANS WORLD OVERVIEW	223
Recent Study	223
Analysis of World Bank telecommunications sector loan - 1962 to 1982	225
Major recipients of World Bank telecommunications sector aid 1962-1982	225
Change	226
World Bank current telecommunications projects under consideration	226
Inter-American Development Bank current telecommunications projects	227
under consideration	227
Asian Development Bank current telecommunications projects under	227
consideration	227
WORLD TELEPHONE DENSITIES	228

WORLD NETWORK DATA

Afghanistan	234
Algeria	234
Angola	235
Anguilla	237
Antigua and Barbuda	238
Argentina	239
Ascension	240
Australia	241
Austria	242
Bahamas	243
Bahrain	244
Bangladesh	245
Barbados	246
Belgium	247
Belize	248
Benin	249
Bermuda	250
Bolivia	251
Botswana	252
Brazil	253
British Virgin Islands : Tortula	254
Brunei Darussalam	255
Bulgaria	256
Burkina Faso (formerly Upper Volta)	257
Burma	258
Burundi	259
Cameroon	260
Canada	261
Cape Verde	262
Cayman Islands	263
Central African Republic	264
Chad	265
Chile	266
China	267
Colombia	268
Comoros	269
Congo	270
Cook Islands	271
Costa Rica	272
Cuba	273
Cyprus	274
Czechoslovakia	275
Denmark	276
Djibouti	277
Dominica	278
Ecuador	279
Egypt	280
El Salvador	281
Ethiopia	282
Falkland Islands	283
Fiji	284
Finland	285
France	286
French Polynesia	287
Gabon	288
Gambia	289
Germany (East)	290

Germany (West)	291	Pakistan	349
Ghana	292	Panama	350
Gibraltar	293	Papua New Guinea	351
Greece	294	Paraguay	352
Grenada	295	Peru	353
Guadeloupe	296	Philippines	354
Guernsey (Channel Islands)	297	Poland	355
Guiana (French Dep.)	298	Portugal	356
Guinea	299	Qatar	357
Guyana	300	Reunion	358
Honduras	301	Rodrigues	359
Hong Kong	302	Rumania	360
Hungary	303	Russia	361
Iceland	304	Rwanda	362
India	305	St Christopher & Nevis	363
Indonesia	306	St Helena	364
Iran	307	St Lucia	365
Iraq	308	St Pierre & Miquelon	366
Ireland	309	St Vincent & The Grenadines	367
Israel	310	San Marino	368
Italy	311	Sao Tome & Principe	369
Ivory Coast	312	Saudi Arabia	370
Jamaica	313	Senegal	371
Japan	314	Seychelles	372
Jersey (Channel Islands)	315	Sierra Leone	373
Kenya	316	Singapore	374
Kiribati	317	South Africa	375
Korea (Republic of)	318	Spain	376
Kuwait	319	Sri Lanka	377
Lao (R.D.P.)	320	Sudan	378
Lesotho	321	Suriname	379
Luxembourg	322	Swaziland	380
Macao	323	Switzerland	381
Madagascar	324	Syria	382
Malawi	325	Tanzania	383
Malaysia	326	Thailand	384
Maldives	327	Togo	385
Malta	328	Tonga	386
Martinique	329	Trinidad & Tobago	387
Mauritania	330	Tunisia	388
Mauritius	331	Turkey	389
Mayotte Island	332	Turks Islands	390
Mexico	333	Uganda	391
Monaco	334	United Arab Emirates	392
Montserrat	335	United Kingdom	393
Morocco	336	United States	394
Mozambique	337	Uruguay	395
Nauru	338	Vanuatu	396
Nepal	339	Venezuela	397
Netherlands	340	Vietnam	398
Netherlands Antilles	341	Wallis & Futuna Islands	399
New Caledonia and Dependencies	342	Yemen	400
New Zealand	343	Yugoslavia	401
Nicaragua	344	Zaire	402
Niger	345	Zambia	403
Nigeria	346	Zimbabwe	404
Norway	347		405
Oman	348		