Challenges of 3rd Generation Mobile Technology for Network Operators

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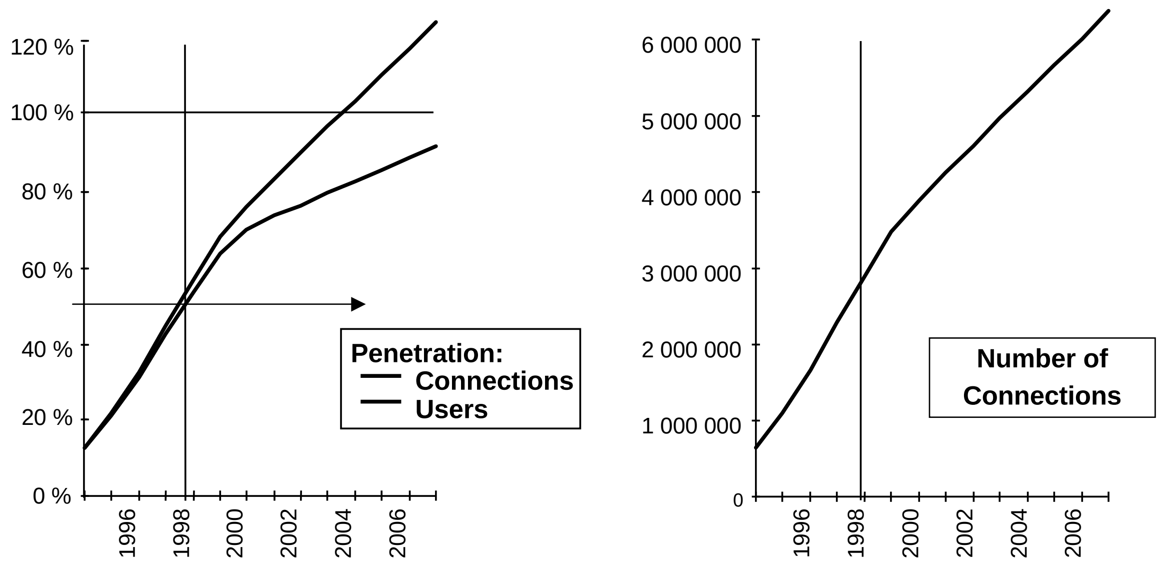
Future Trends

- **Information Society**
- **Globalisation and New Technologies are Key Drivers**
- **The Future is shaped by:**
  - ✔ **Individualism and Versatility**
  - ✔ **Local, regional and national Aspects**
- **Market Influences: Internet, EMU, etc.**

Mobile Communications in Finland



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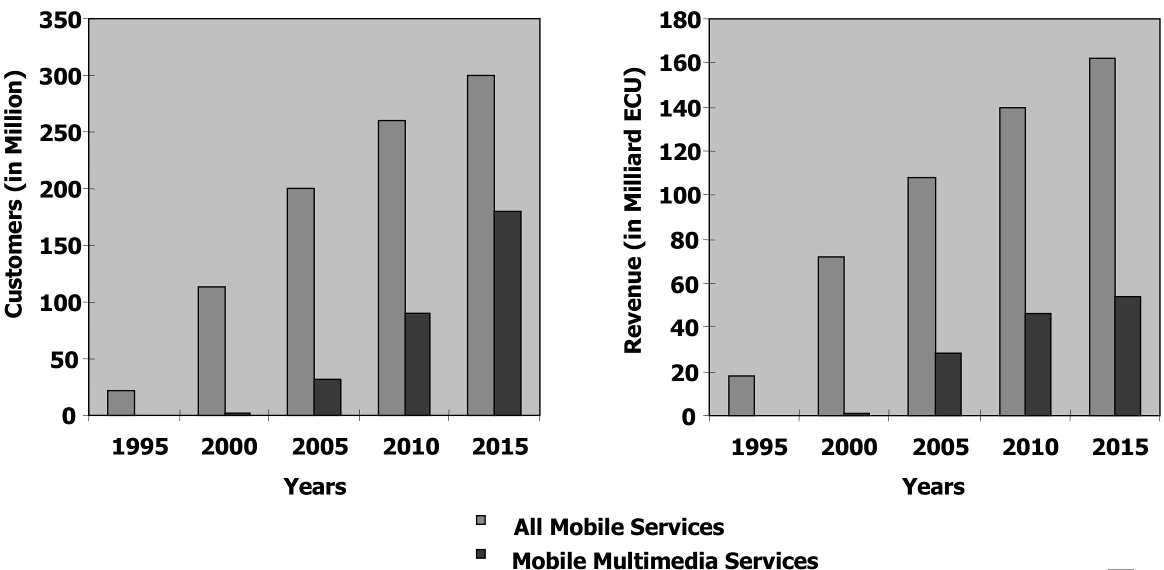
Mobile Communication Market in EU



Source: UMTS Forum/MAG/Analysis (1997)

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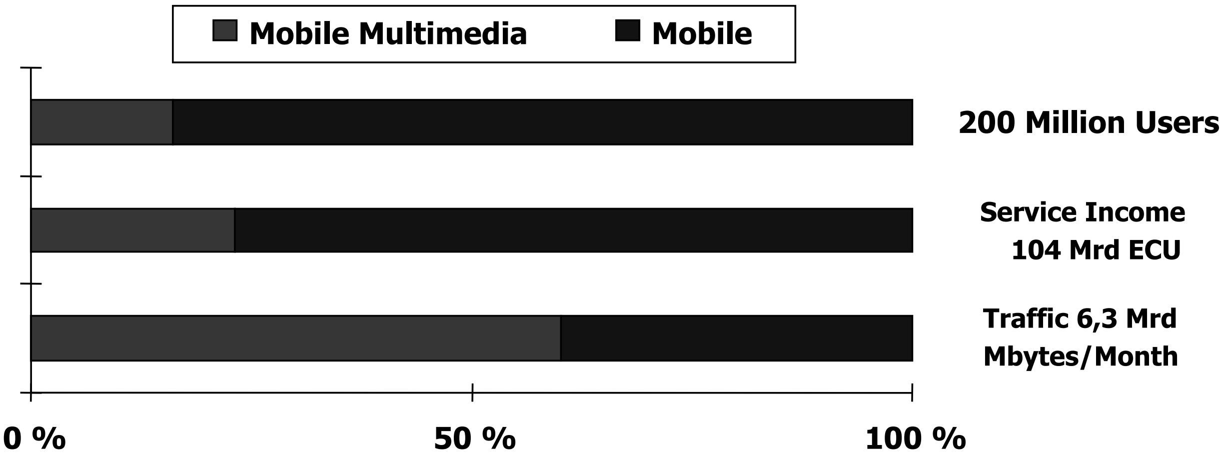
EU Vision in 2005



- **Penetration 55 %**
- **Mobile Multimedia 60 % of the Traffic**
- **Terminal Sales (simple/high-end): 80/20 %**

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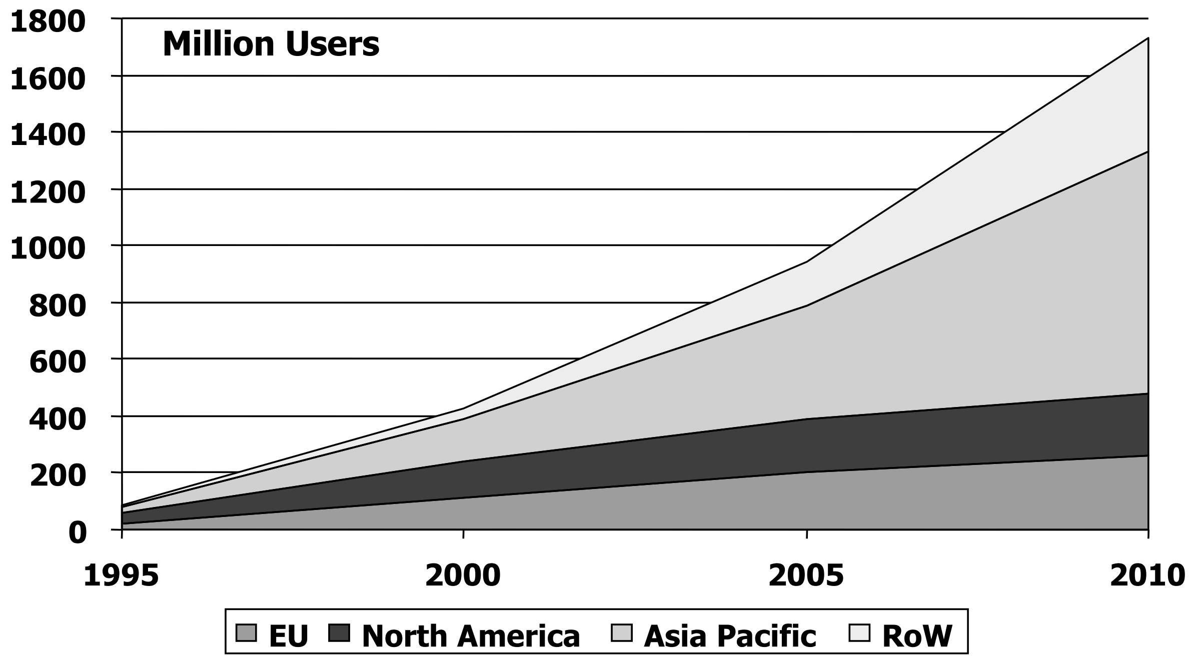
Global Mobile Market



Source: UMTS Forum Report / A Regulatory Framework for UMTS, 06/97

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3G Evolution Path (1)

- **GSM Platform is the Basis of 3G/UMTS (Universal Mobile Telecommunications System)**
- **High Speed Circuit Switched Data (HSCSD) available early 1999**

  = 2 to 8 * 9,6 kbit/s
- **General Packet Radio Services (GPRS) in 1999**

  = Up to 115 kbit/s, directly to IP Network
- **GSM 384 in 2000+, up to 384 kbit/s**

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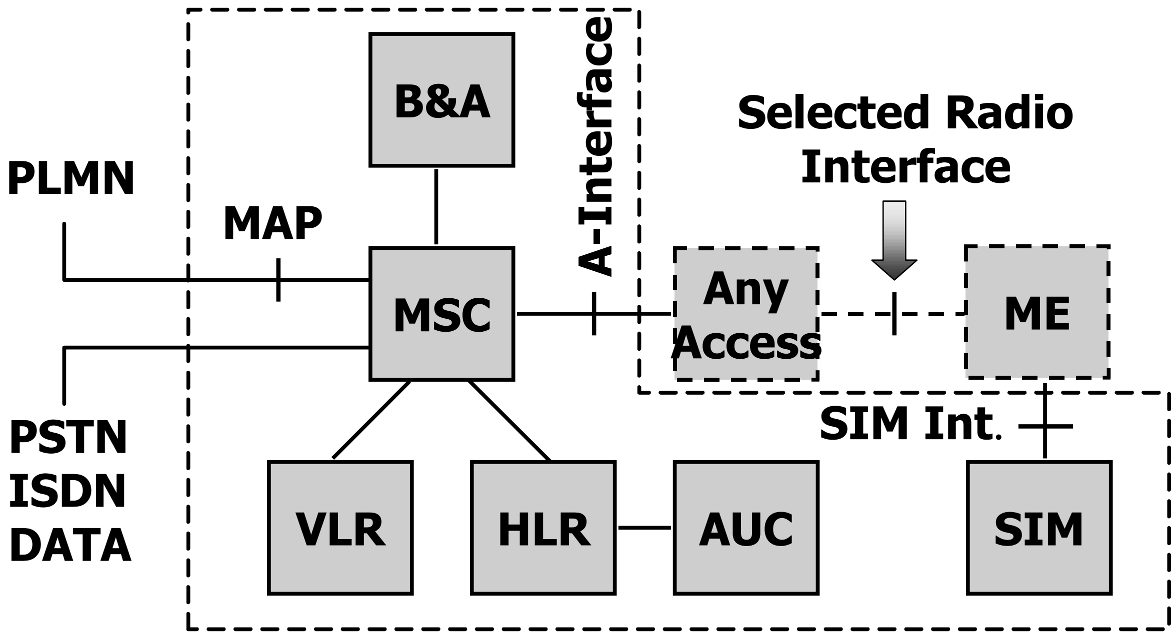
GSM Platform



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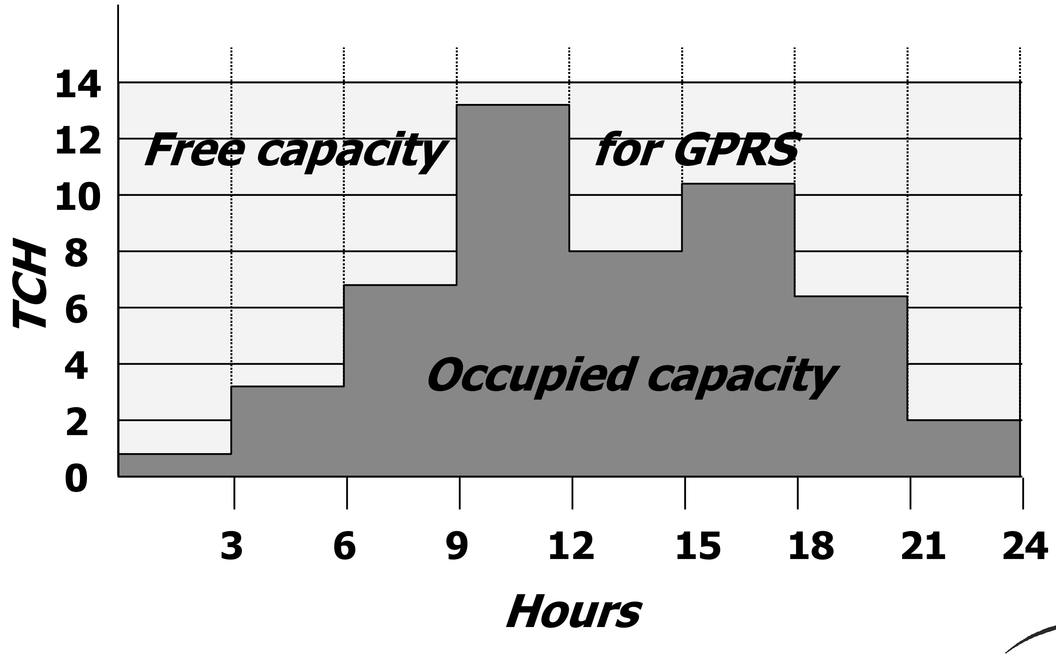
General Packet Radio Services in GSM Radio Access



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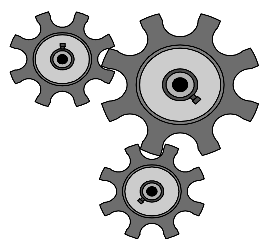
3G Evolution Path (2)



- UMTS is an IMT-2000 Candidate
- UMTS Phase 1
  - = GSM Phase 2++
    - = GSM+GPRS+UTRA
- GPRS is the deciding factor in GSM/UMTS evolution
- IT will significantly influence 3G
- 3G is about *Multimedia* !!!

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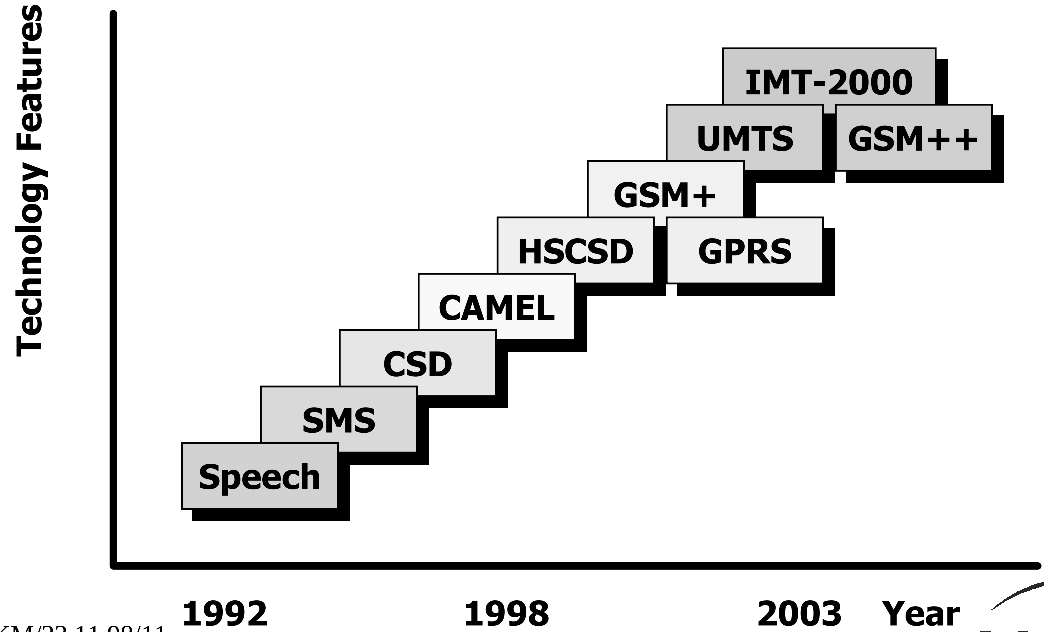
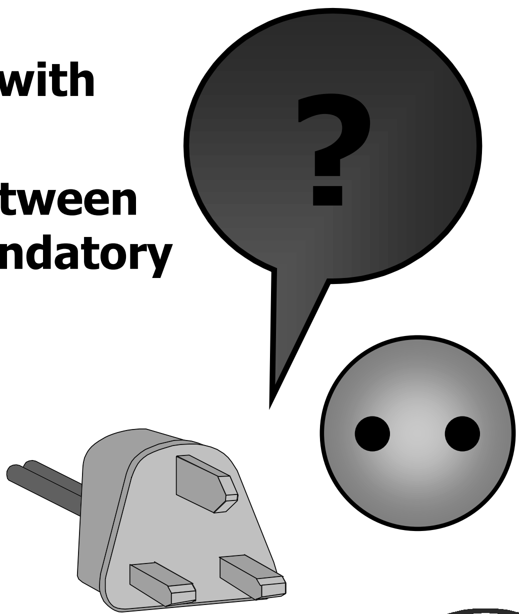
Mobile Evolution



Network Operator Requirements

- 3G/UMTS shall be open with Standardised Interfaces
- Dual Mode Operation between GSM and 3G shall be mandatory
  - ➨ Handover
  - ➨ Service Handover
  - ➨ Quality of Service re-negotiation



Standardisation Challenges

- **Manufacturers, Operators and Regulators are the Key Players**
- **Timetable for UMTS is uncertain**
  - **IPR-issues in W-CDMA**
  - **New Standardisation Bodies - Is there time for Open Interfaces?**
- **Complex Multi-vendor environment**
- **End-user services should determine 3G**

Mobile Services Trend

Industrial Model

PLAN → BUILD → SELL

Technologies & Platforms

Service & Customer Management

Content

Information Technology Model

SELL → CREATE → CUSTOMIZE

Mobile Business Evolution

- **3G is Services Business**
  - ✔ **new kind of competition**
  - ✔ **new competitors**
- **3G is linked to 2G Business**
  - ✔ **3G cannot compete with Basic Services**
- **Most Services can be implemented in GSM**
  - ✔ **WAP > GPRS > EDGE**
- **3G could be implemented with 2G!**

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The Facts

- **Mobile approaches Fixed Call Price**
- **New Technology cannot compete with Basic Services, Coverage and Roaming**
- **Mobile generates less Revenue**
- **Competition reduces Profitability**
- **Decreasing Return on Investments**
- ***Customer expectations rise!!***

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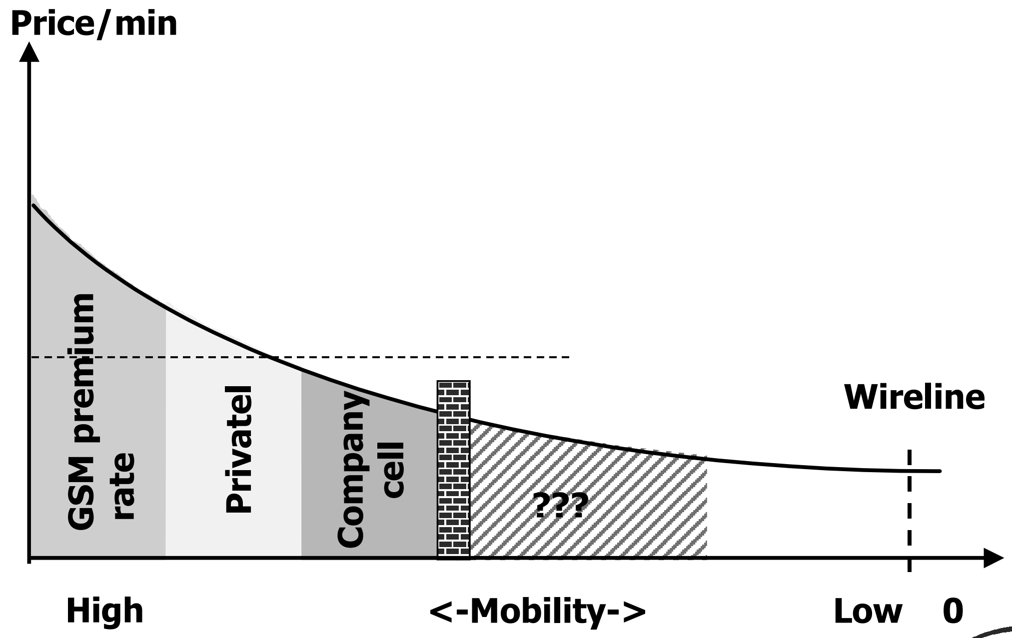
Mobile approaches Fixed



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3G/UMTS Services (1)

Person to Person Services

- ✔ Basic Voice Services
- ✔ Video Conference

Common Information Services

- ✔ WWW Browsing
- ✔ Electronic Commerce
- ✔ Location Based Services
- ✔ Advertisement

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3G/UMTS Services (2)

Corporate Services

- ✔ Fast Mobile Office
- ✔ Virtual Working Groups and Teams
- ✔ Resources-On-Demand

Education Services

- ✔ On-Line Laboratories
- ✔ Training-On-Demand
- ✔ Virtual Universities

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3G/UMTS Services (3)

Special Services

- ✔ TeleMedicine
- ✔ Security Services

Entertainment Services

- ✔ Audio-On-Demand
- ✔ Games-On-Demand
- ✔ Video Clips
- ✔ Virtual Tourism, ...

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Industry Transition
Industry Structure

From	To
✔ Vertical Integration	✔ Service Co-operation
✔ Oligopolies	✔ Multi-Value Networks
✔ Few established Partners	✔ Dynamic Partnerships through VASPs

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Industry Transition
Market Entry

From	To
✔ Restricted	✔ Open
✔ Regulated	✔ Deregulated
✔ High barriers	✔ Low barriers

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Industry Transition
Markets

From	To
✔ Mass market	✔ Micro markets
✔ Local, regional	✔ International focus
✔ Homogeneous	✔ Segmented

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Industry Transition
Distribution Channels

From	To
✔ Structured	✔ Flexible
✔ A few dominant Players	✔ Increase in Selection
✔ Dealer/Service Provider	✔ Direct Electronic Channels, etc.

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Industry Transition
Products

From	To
✔ Standard	✔ Customised
✔ Uniform	✔ Diversified
✔ Price Consistency	✔ Price Differentiation

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Summary

3G Technology	+	Changing Market Conditions	+	Differentiated End-user Demands

Will lead Network Operators towards

- ✔ Internationalisation
- ✔ Co-operation
- ✔ Active involvement in new issues

to become flexible Service oriented Partners

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