



ITU-D/ ITU-T Seminar on Standardization and Development of Next Generation Networks for the Arab Region

29 April – 2 May 2007, Manama, Barhain

Convergence Strategy and Trends

Oscar González Soto
ITU Consultant Expert
Strategic Planning and Assessment



Convergence Strategy and Trends Content



- **Convergence Dimensions**
- **Convergence drivers**
 - Economies of scale
 - Competition Level
- **A stair case strategy and evolution trends**
 - Business trends per category
 - Migration steps towards universal operation



Convergence Strategy and Trends Convergence dimensions



Convergence is taking place at several domains

- At **Network** domain
 - One network for all service types: NGN, IMS
- At **Service** domain
 - Fixed, Nomadic, Mobile, Interactive and Broadcasting, etc.
- At radio **Access** domain
 - DECT, WiMax, 3G, etc.
- At **Operational** domain
 - OSS, Billing, etc, for all customer classes
- At **Terminal** domain
 - 2G, 3G, PDA, etc.



Convergence Strategy and Trends Convergence dimensions

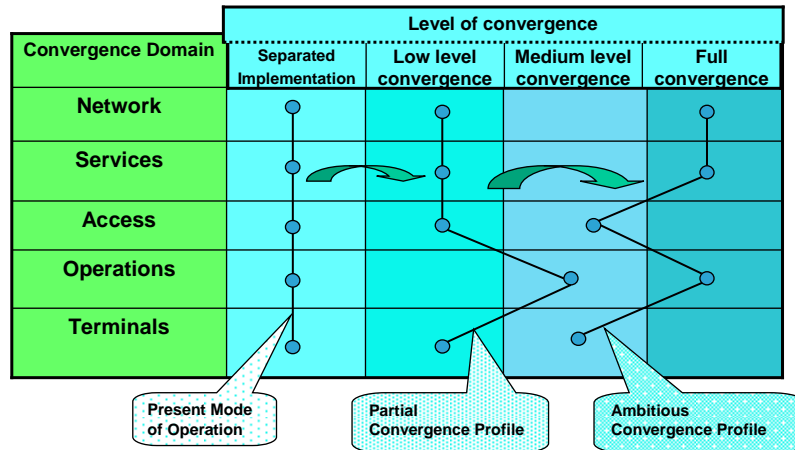


Convergence steps at network domain

- Starting with the 5 current separated networks based on TDM (PSTN, IN, SS7, Mobile, Data ATM/IP)
- Migrating to single IP based NGN at core segment
- Migrating at IP based NGN at Edge and Access Segments
- Incorporating partial pre-IMS open service architecture
- Incorporating full end-to-end IP mode with IPv6
- Implementing full IMS functionality



Convergence Strategy and Trends Convergence profiles



Migration profile driven by: Initial status, Market development, Economy of scale and Operator Strategy

April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

slide 5



Convergence Strategy and Trends Content



- **Convergence Dimensions**
- **Convergence drivers**
 - Economies of scale
 - Competition Level
- **A stair case strategy and evolution trends**
 - Business trends per category
 - Migration steps towards universal operation

April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

slide 6



Convergence Strategy and Trends

Key Factors: Economies of scale



Economies of scale are an inherent characteristic to the telecom technologies that impacts on solutions, evolution and also now survivability in competition

– The five dimensions of the economy of scale:

- By **Size** of the systems → Larger systems cheaper per unit
- By **Technology** capabilities → New technologies with higher capacity
- By **Traffic efficiency** with the occupancy → Higher utilization for a given GoS when more servers
- By customers **Density** → Quadratic increase with coverage radio
- By **Volume** of purchasing → Discount per volume in log scale



Convergence Strategy and Trends

Key Factors: Competition level



Different Levels of Competition

- **L1) Monopoly** for all geographical areas, customer classes and service types
- **L2) Limited monopoly** per area and/or service types while free operation for niche operators
- **L3) Moderate competition** for all network segments and services
- **L4) High competition** for high revenue customers and services
- **L5) Aggressive competition** for all areas, customers and services

*“Efficient telecom implies different competition levels as a function of **country size** and **development status**”*

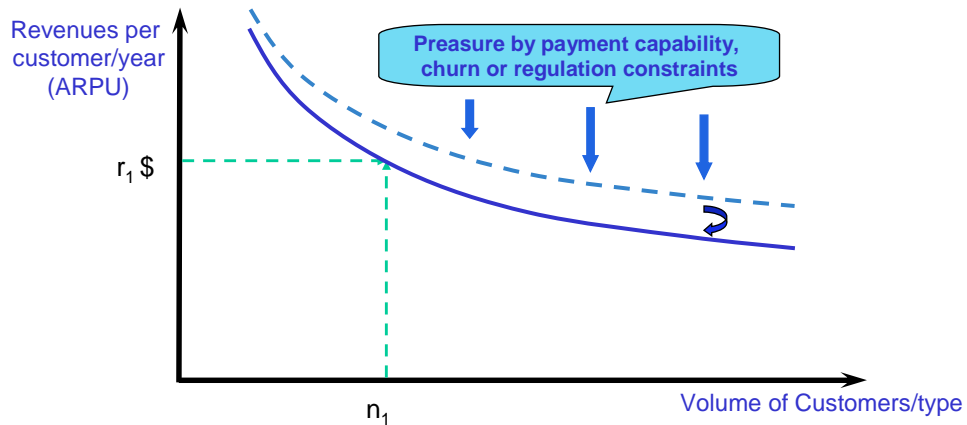


Convergence Strategy and Trends

Key Factors: Competition level



Business feasibility space as a function of customer volume and ARPU



ARPU is up-limited by the economical development level and fixed costs

April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

slide 9

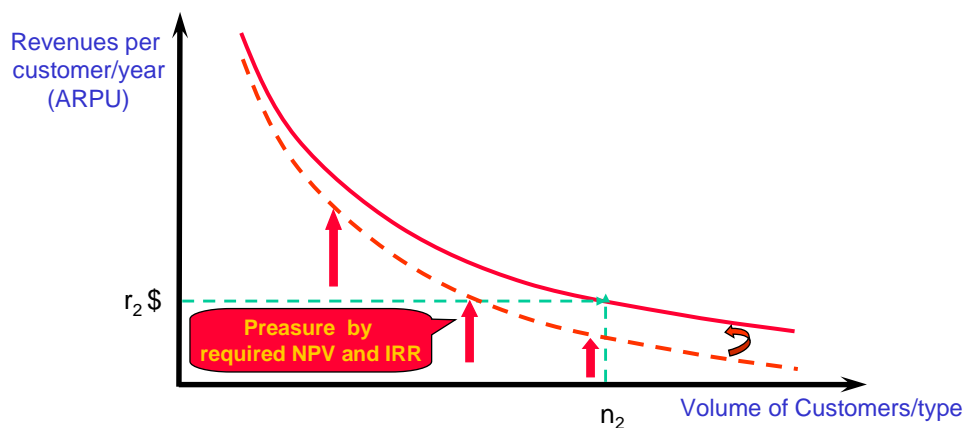


Convergence Strategy and Trends

Key Factors: Competition level



Business feasibility space as a function of customer volume and ARPU



Business feasibility is down-limited by the need of a positive NPV

April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

slide 10

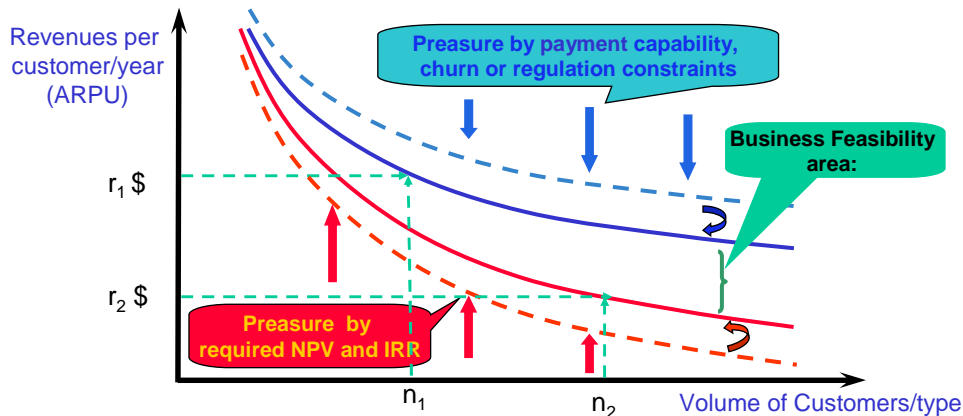


Convergence Strategy and Trends

Key Factors: Competition level



Feasibility space highly dependent on country size and economic level



Business feasibility area limited by positive NPV and payment willingness

April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

slide 11

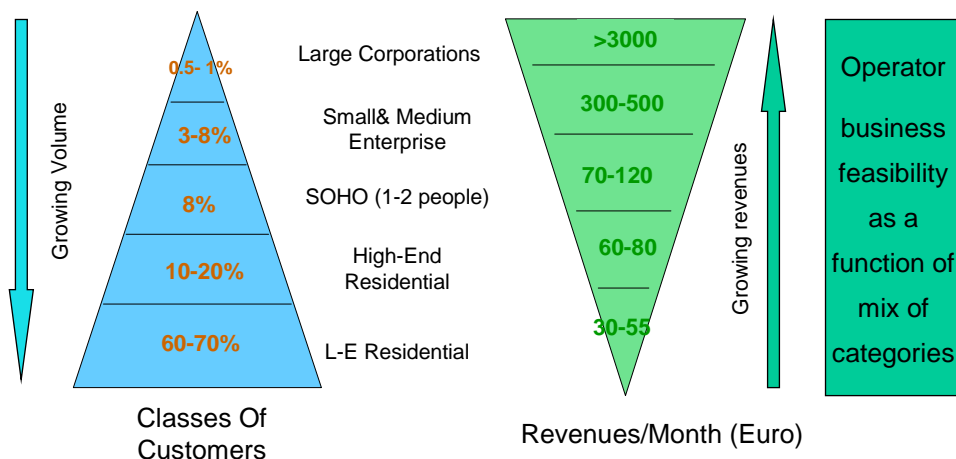


Convergence Strategy and Trends

Business domains and trends



Illustration case for customer categories and revenues



“Customer stratification should be analyzed per country”

April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

slide 12



Convergence Strategy and Trends Content



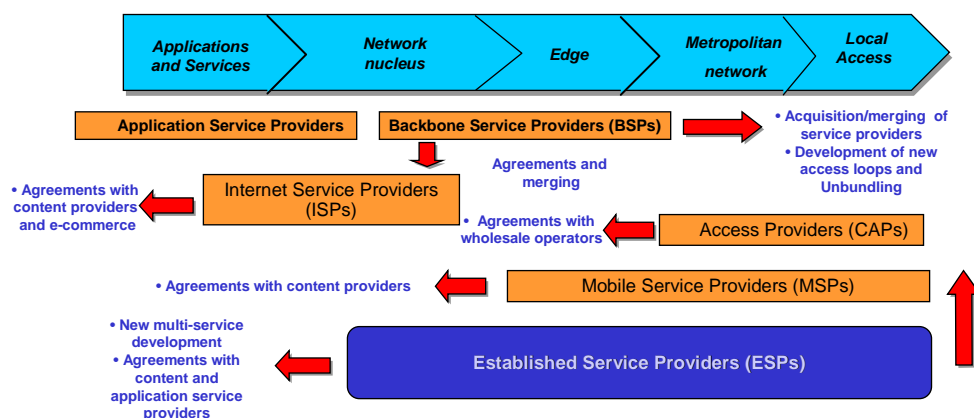
- **Convergence Dimensions**
- **Convergence drivers**
 - Economies of scale
 - Competition Level
- **A stair case strategy and evolution trends**
 - Business trends per category
 - Migration steps towards universal operation



Convergence Strategy and Trends Business domains and trends



Example of Value Added chain and operators movements to gain economy of scale and market

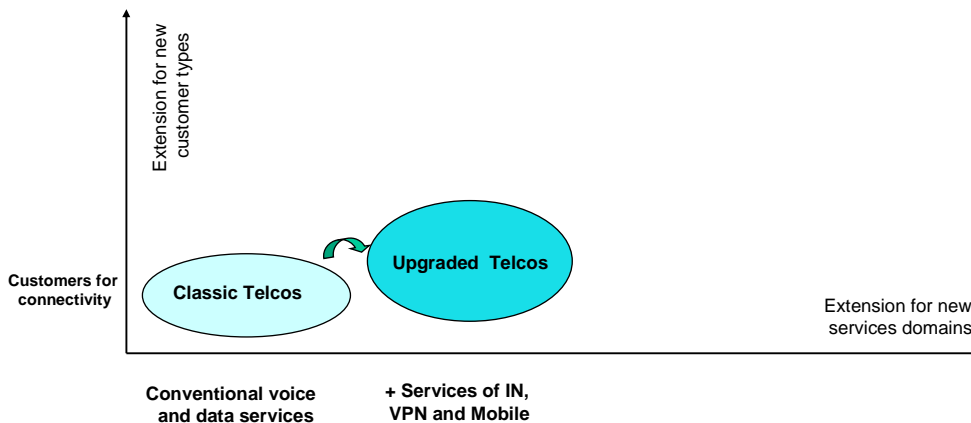




Convergence Strategy and Trends Migration steps



“staircase” for leading growing alternatives



April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

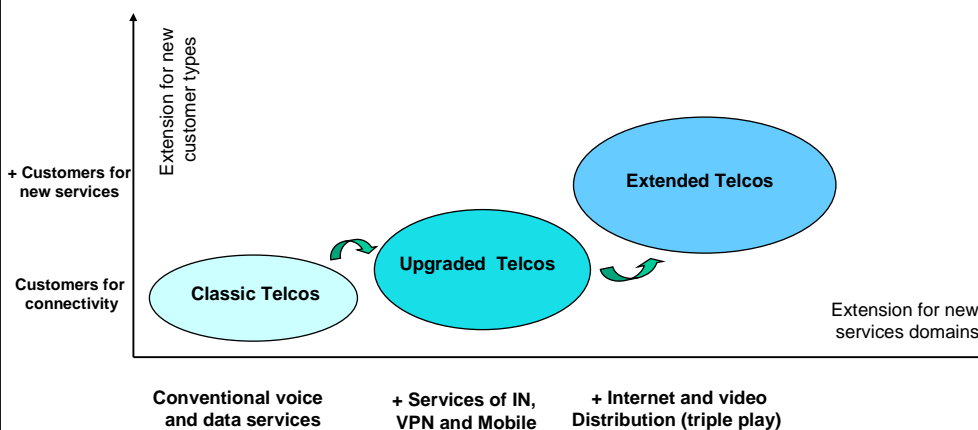
slide 15



Convergence Strategy and Trends Migration steps



“staircase” for leading growing alternatives



April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

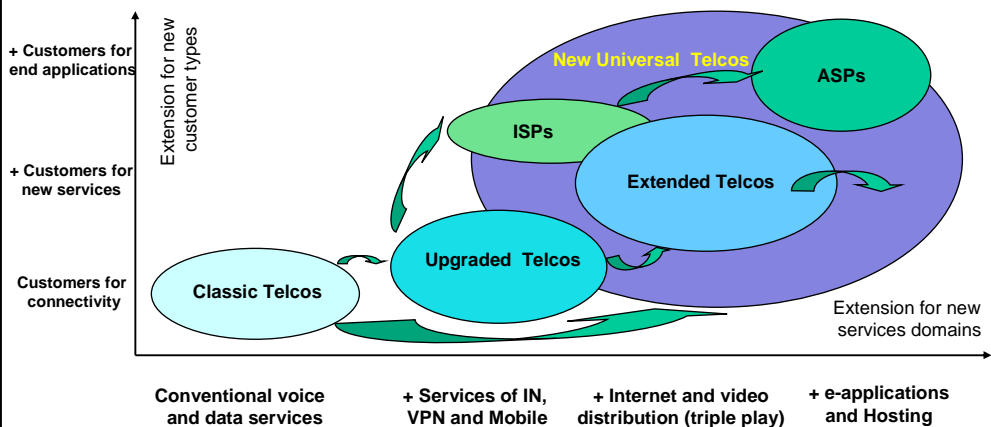
slide 16



Convergence Strategy and Trends Migration steps



“staircase” for New Universal Telcos



Specific migration and timeframe to be optimized for the country context and regulatory conditions

April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

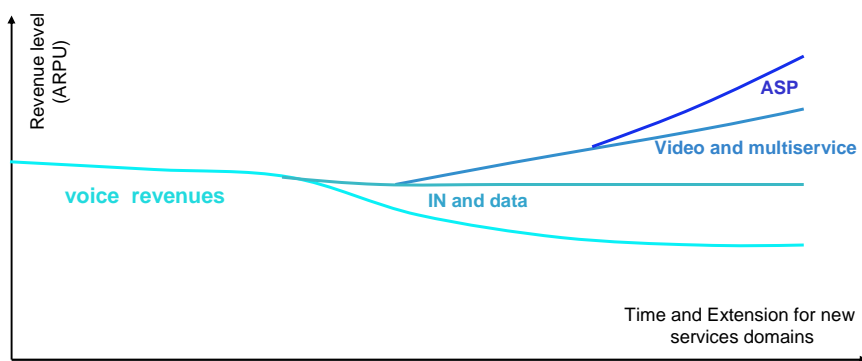
slide 17



Convergence Strategy and Trends Migration steps



Evolution of revenues with service domains



Conventional voice and data services + Services of IN, VPN and Mobile + Internet and video distribution (triple play) + e-applications and Hosting

Convergence strategy is fundamental to grow in a competitive environment

April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

slide 18



Convergence Strategy and Trends Role of Business Planning



Evaluations to be based on robusts techno-economical tools due to high number of alternatives and complexity

Case study performed for medium size country with mixes of customer classes and services domains:

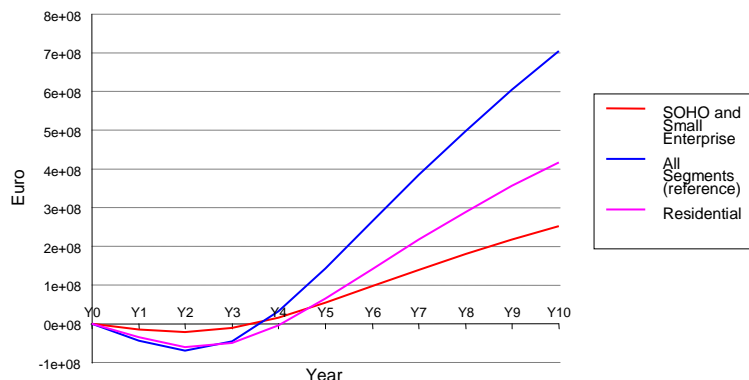
- Multiservice IP Network with integrated operation available
- Three service categories: Voice, Data/Internet, Video distribution
- Modeling demands, multiservice traffic flows, dimensioning, network resources, CAPEX, OPEX and financial results for different levels of competition
- Evaluate differential future Cash-flows, NPV, IRR, etc. for a 10 years period



Convergence Strategy and Trends Role of Business Planning



Effects of the mix of customers on Reference Scenario: Low competition level
Network NPV



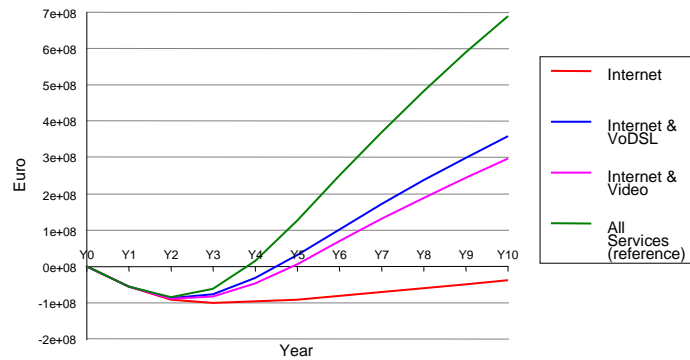
- SME and SOHO with quicker recovery but less NPV and company value at medium term
- "All customer segments" case with much better behavior



Convergence Strategy and Trends Role of Business Planning



Effects of the mix of services on Reference Scenario: Low competition level
Network NPV



- Major impact of service classes on NPV and company survivability
 - Single service classes without future
 - High benefit of "all services" case

April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

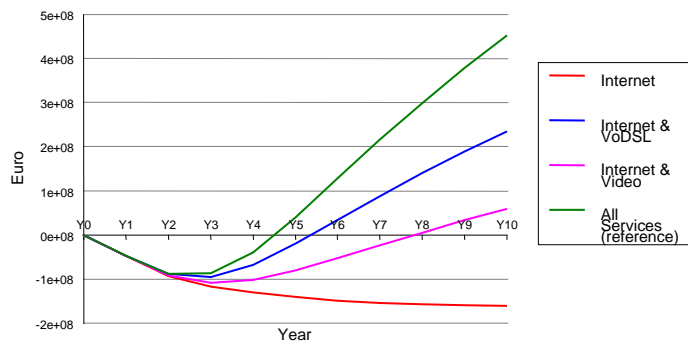
slide 21



Convergence Strategy and Trends Role of Business Planning



Effects of the mix of services on typical scenario: Medium competition level
Network NPV



- Increase of competition level amplifies the previous effects on feasibility: big differences between service mixes
- Data only or single service classes without feasibility at medium term
 - Very robust behavior for the "all services" case

April-May, 2007

ITU/BDT/ Convergence Strategy O. G.S.

slide 22



Convergence Strategy and Trends Recommendations



- Perform proper **modeling of key techno-economical factors** for business evaluation of convergence alternatives
- Focus on **extended services** for multiple customer types, multiple services domains
 - Take benefit of **all economies of scale**

**!! Which convergence will happen ?
Combination Driven by Market, Economy of scale and
Competition !!**