



ITU-APT Workshop on NGN Planning

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Convergence Strategy and Trends

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Convergence Strategy and Trends Content



- **Convergence Dimensions**
- **Convergence drivers**
 - Cost structure and savings
 - 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 levels

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

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Convergence Strategy and Trends Convergence dimensions



Convergence steps at network level

- 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

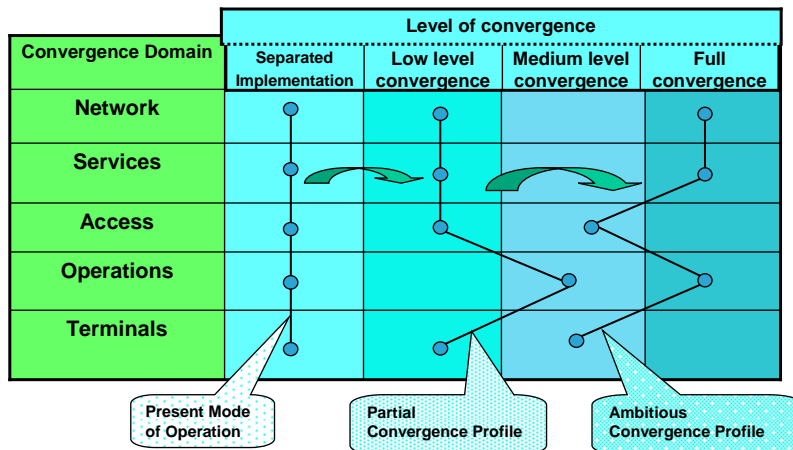
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Convergence Strategy and Trends Convergence profiles



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

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Key Factors: Cost structure and savings



- High cost impact of network infrastructure layer: > 60% in Greenfield areas of which > 70% in access segment.
- Dimensioning and cost evolving in 3 phases through time:
 - A) Accessibility due to **Geo coverage** either physical or radio
 - B) Equipment in **Ports/users** as customers grow
 - C) Capacity in **Traffic** due to increase of multiservice applications
- Significant savings by resources and equipment sharing within an operator due to convergence at network layers : i.e.: **30%**
- Additional savings inter-operators due to cost sharing of non-core equipment (buildings, towers, etc.) > **20%**

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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

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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**”*

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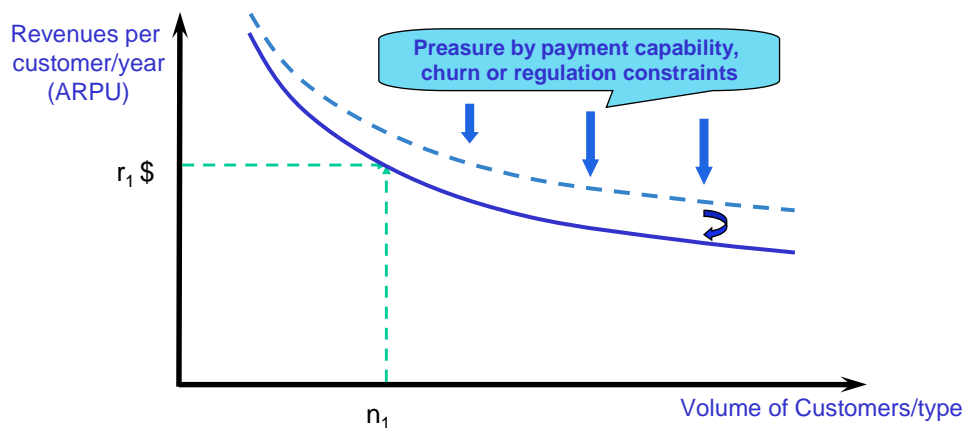


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Key Factors: Competition level



Business feasibility space as a function of volume and ARPU



ARPU is limited by the economical development level and fixed costs

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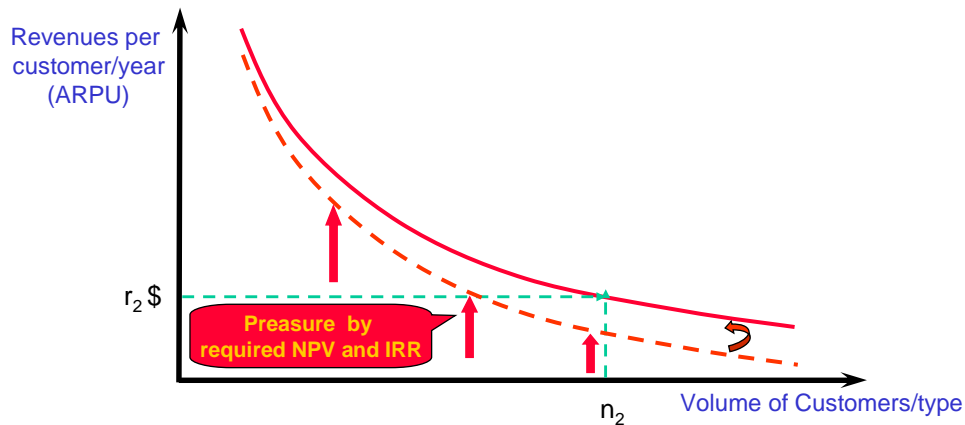


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Key Factors: Competition level



Business feasibility space as a function of volume and ARPU



Business feasibility limited by positive NPV

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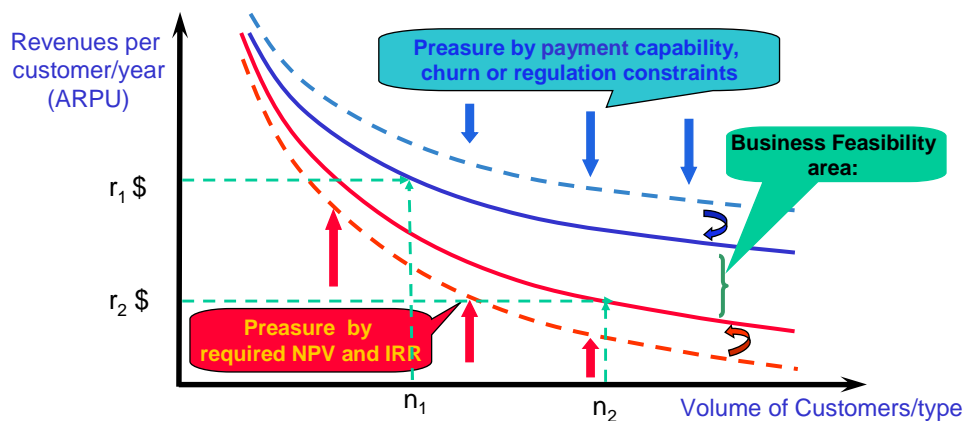


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Key Factors: Competition level



Feasibility space highly dependent on country size and economic level



Business feasibility limited by positive NPV and payment willingness

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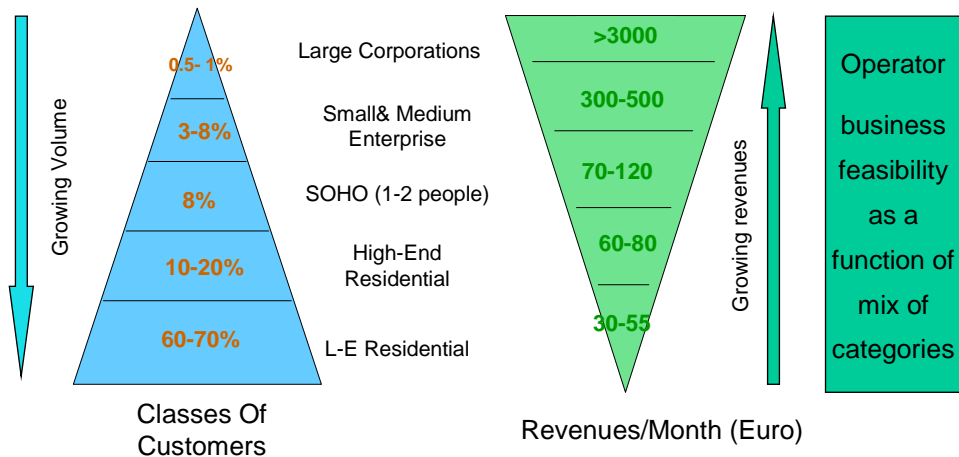
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Convergence Strategy and Trends Business domains and trends



Illustration case for customer categories and revenues



“Customer stratification should be analyzed per country”

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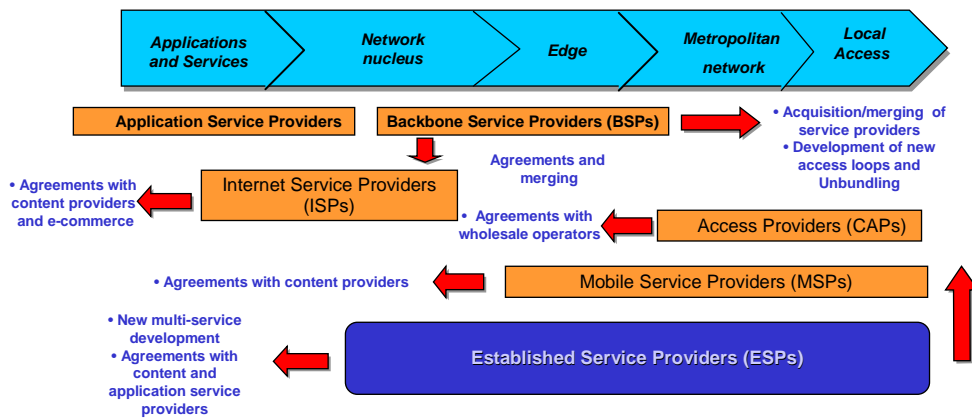
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Convergence Strategy and Trends Business domains and trends



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



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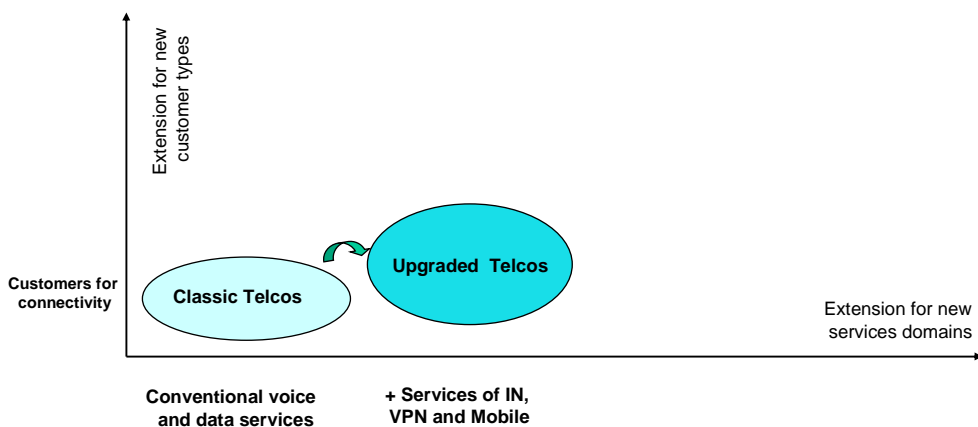
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Convergence Strategy and Trends Migration steps



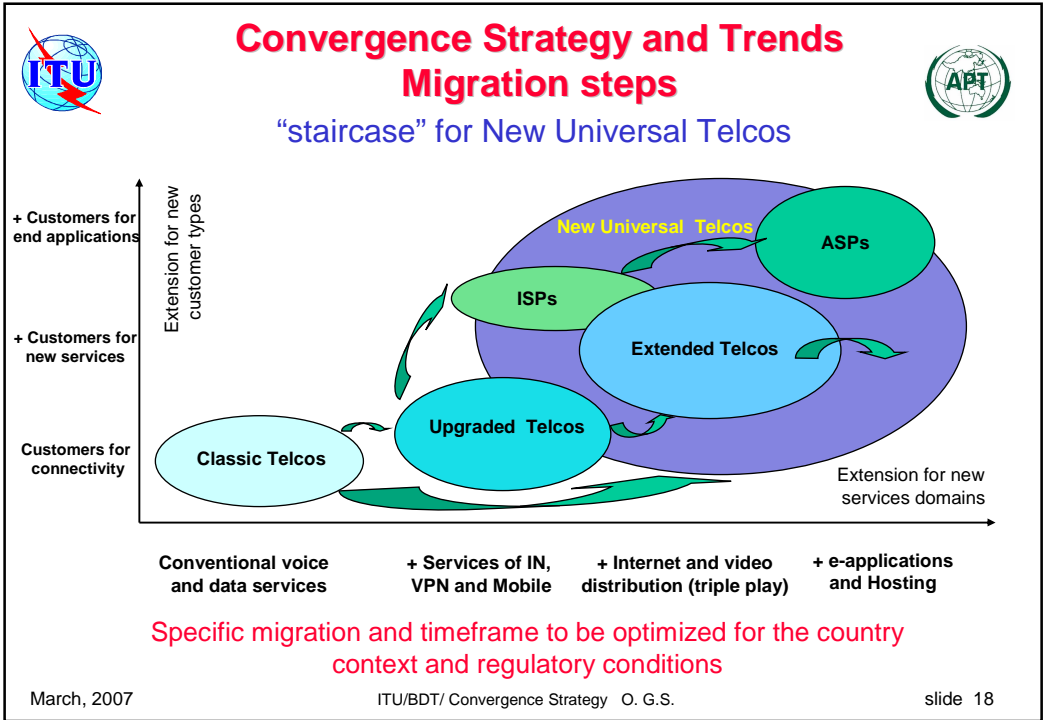
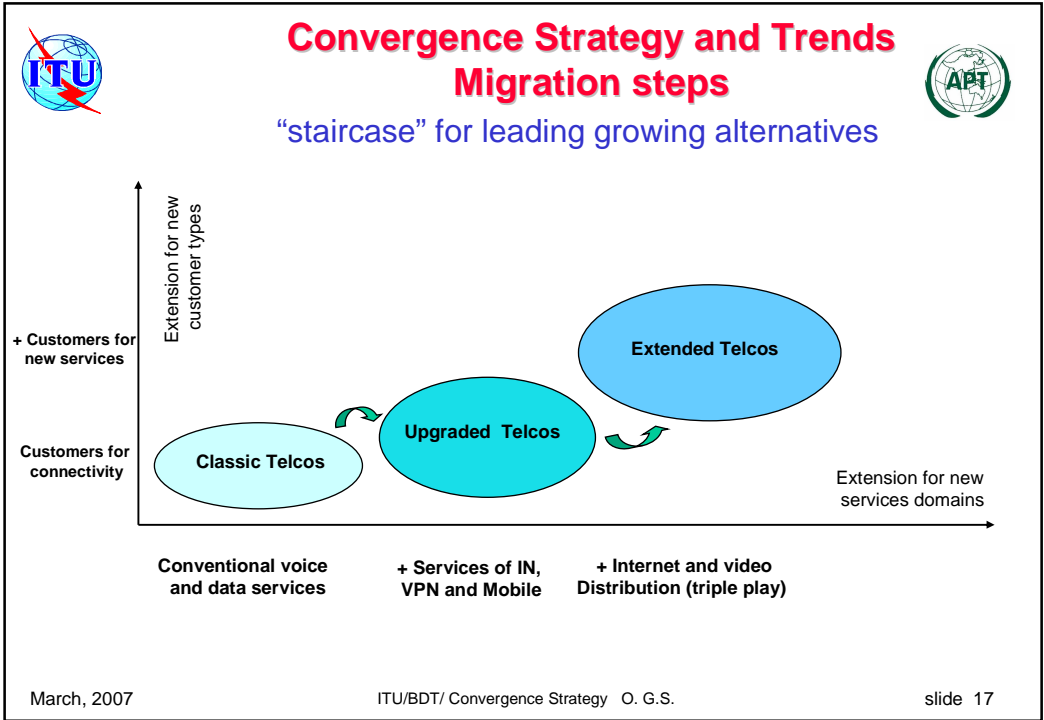
"staircase" for leading growing alternatives



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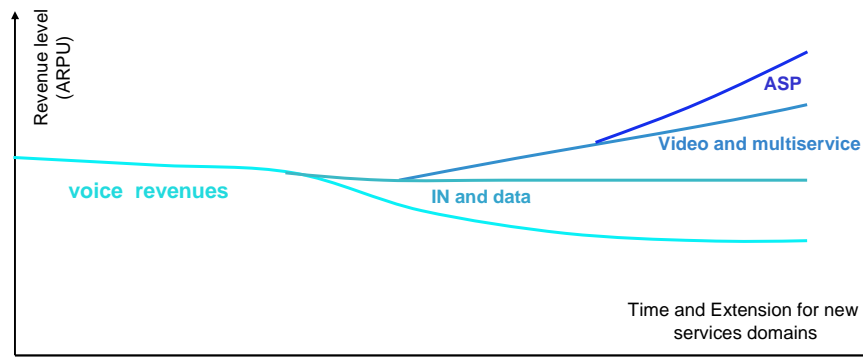




Convergence Strategy and Trends Migration steps



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 be competitive and to grow

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Convergence Strategy and Trends Role of Business Planning



- Forecast solutions, costs and revenues
- Evaluate future Cashflows, NPV, IRR, ROI, etc.
- Perform “What-if” analysis for optional alternatives on Volume of customers, customer mixes and services domains
- Perform benchmarking with “best in class” operators
- **Decision making on strategy and actions in competition based on quantified evaluations**
- Recommend alternatives and actions to ensure success

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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

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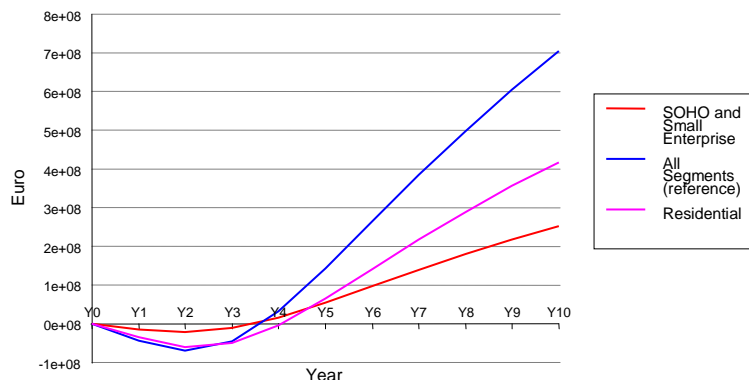
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Convergence Strategy and Trends Role of Business Planning



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

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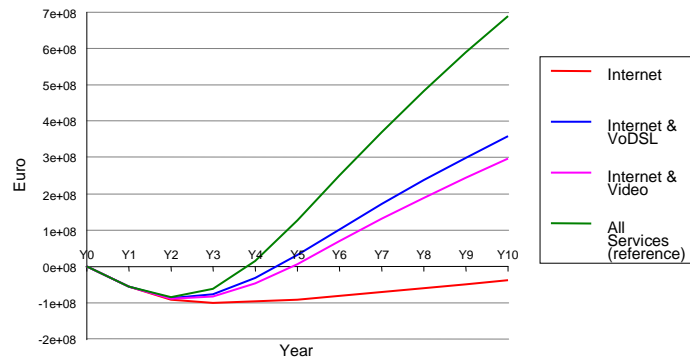
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Convergence Strategy and Trends Role of Business Planning



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

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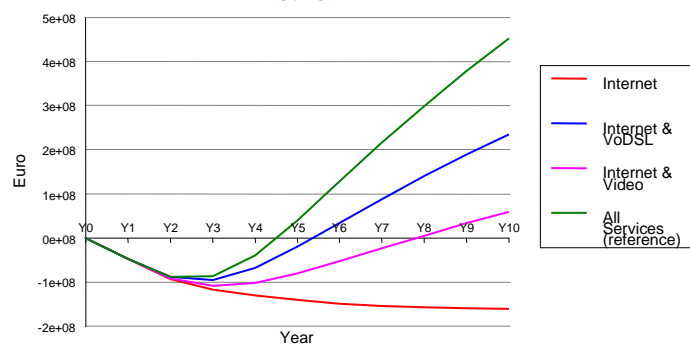
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Convergence Strategy and Trends Role of Business Planning



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

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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 !!**