



ITU-BDT Regional Seminar on Broadband Wireless Access (BWA) for European and CIS Countries

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Business Planning and Migration to 3G

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Strategic Planning and Assessment



Business Planning and Migration to 3G Content

- **Factors in the 2G to 3G evolution**
 - Motivation and Key economic issues
 - Driving services
- **Techno-Economic and Business modeling**
 - Dimensioning criteria and modeling
- **Tool based planning**
 - Techno-economic tool modeling
 - Typical planning results



Business Planning and Migration to 3G Business Motivation for 3G

- Introduction of **New Services** generating more revenues
- Increase **Market share** addressing all market interests
- Design of **Bundles** of services optimized per customer category
- **Economies of scale** with higher increase of profitability for more customers and services than additional investments



Business Planning and Migration to 3G Key Economic Factors

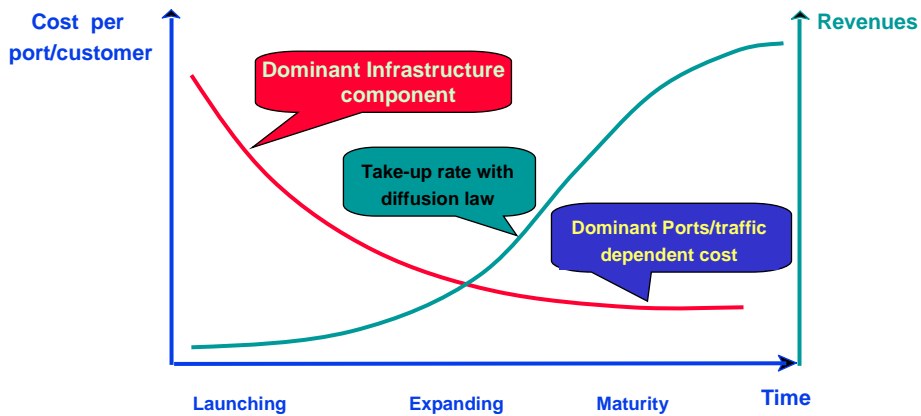
- **Dominant dimensioning criteria** evolving in 3 phases:
 - **Geo coverage** due to propagation at start phase
 - **Ports/users** as customers grow
 - **Traffic** increase due to applications
- **High cost** impact of network physical infrastructure (around 70%)
- **Significant savings** by physical resources sharing among operators
- **Business profitability** as a function of Revenues for new services, Take-up rate and **Cost of Ownership**

Impact on business? → **What-if analysis**



Business Planning and Migration to 3G Key Economic Factors

- Evolution for unitary costs and revenues



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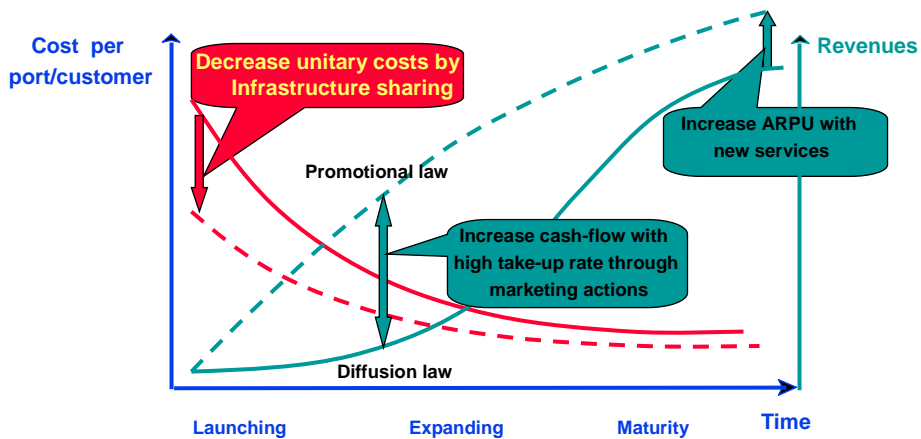
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Business Planning and Migration to 3G Actions for profitability

!! Joint Techno-economical evaluation at all phases !!



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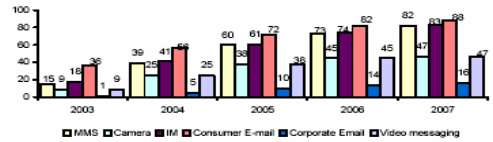
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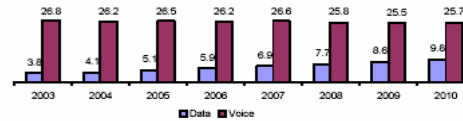
Business Planning and Migration to 3G Capabilities and Revenue evolution

– Grow for data related capabilities and services in terminals and network



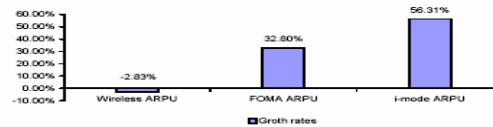
Source: CSFB and Portio Research Analysis

– Grow in rate of contribution of Data to Voice revenues (ie: ARPU - GBP projections for Vodafone in EU)



– Relative grow rates for Data driven ARPU in Japan

Figure 4.21 Comparison of ARPU figures of NTT DoCoMo



Source: Portio Research Analysis

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Business Planning and Migration to 3G Some Driving new services for 3G

- Live-TV
- Audiostreaming
- Videostreaming
- Top News
- Location Based Systems
- Videocalls
- m- medicine and social applications

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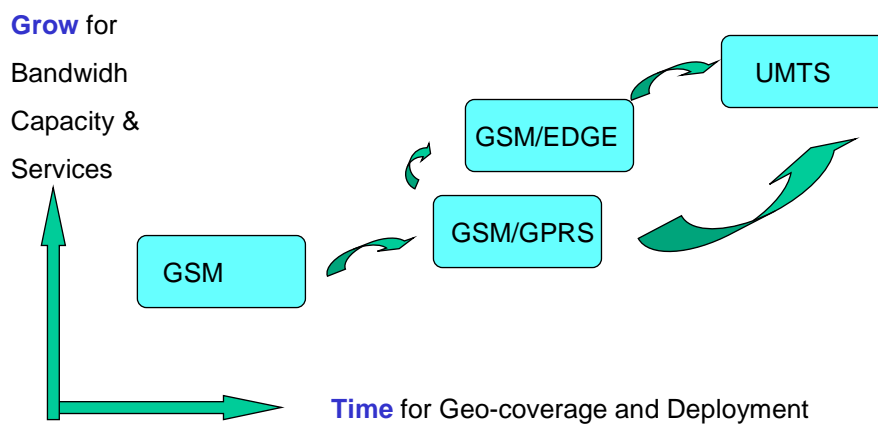


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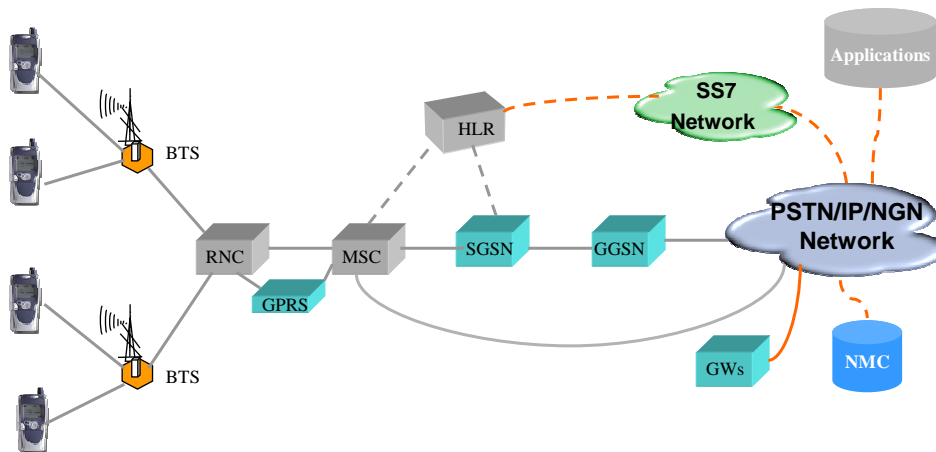
Business Planning and Migration to 3G Network Evolution steps



Migration strategy is strongly dependent on **country**
Geo-structure and density



Business Planning and Migration to 3G Modeled architectures



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Business Planning and Migration to 3G Geo-scenarios

Geo-scenarios for network design as a function of customer density which require different dimensioning criteria

- A) Urban with high customer densities and high voice and data traffic
- B) Suburban with medium customer densities and average traffic
- C) Rural with low customer densities and low traffic volume
- D) Hotspots with specific high density and traffic requirements

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Business Planning and Migration to 3G Dimensioning criteria in 3G

Multicriteria Dimensioning principles for multimedia services

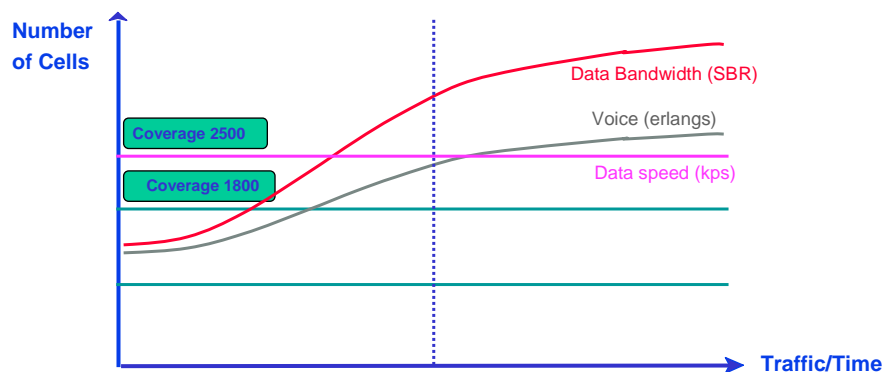
- C1) - **Radio Coverage** per frequency type: 450, 600, 900, 1800, 2500: dominant for low voice traffic without data.
- C2) - **Traffic in erlangs** for voice: dominant in urban scenarios and hot-spots
- C3) - **Data services** quality as a function of speeds: dominant in suburban and rural scenarios
- C4) - **Data bandwidth** as a function of mix of data services **Sustained Bit Rates** and QoS along the cell due to the cell-breathing effect: dominant for high proportion of data and video consumption in all scenarios

Actual dimensioning for cells and equipment as a result of the convolution of all of them per geo-scenario



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Multicriteria Dimensioning for QoS (urban case)

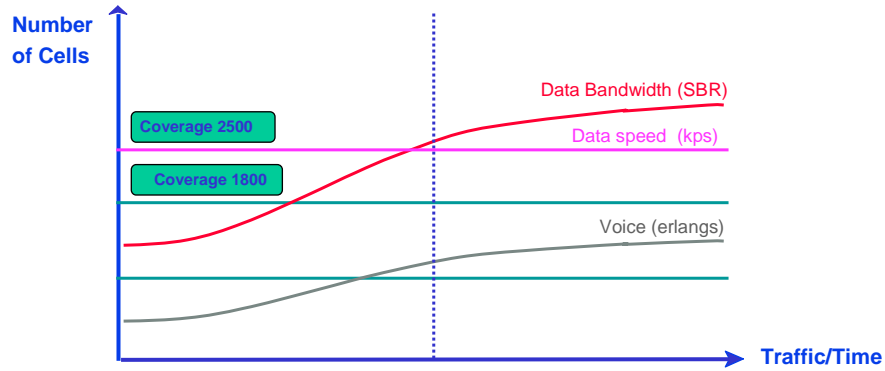


**!! Escape from dimensioning based only on coverage !!
Data BW dominant in 3G**



Business Planning and Migration to 3G Dimensioning criteria in 3G Convergence

Multicriteria Dimensioning for QoS (suburban case)



**!! Escape from dimensioning based only on coverage !!
Data BW dominant in 3G**

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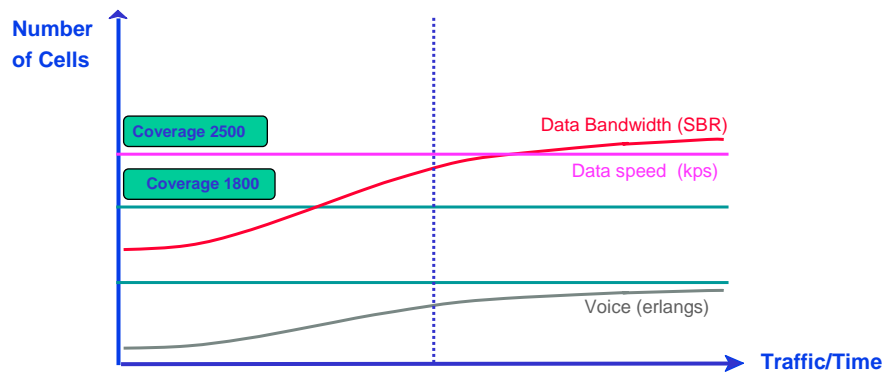
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Multicriteria Dimensioning for QoS (rural case)



**!! Escape from dimensioning based only on coverage !!
Data BW dominant in 3G**

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Business Planning and Migration to 3G Network Systems Modeling for the migration

- **Customer Segments** (business, residential) and Services (Voice and Data low/medium/high speed)
- **Sites and Base Stations** at Urban, Suburban, Rural and Hot spots
- **Backhaul** per geo-scenario
- **Core Network** with the specific network elements in the architecture
- **Transport** for voice, circuit mode data and packet mode data
- **Interconnection** for voice and data



Business Planning and Migration to 3G Resources modeling over time

- **Network resources** are associated to Network elements per type
- Resources modeled by **capacity, utilization**, physical lifetime and depreciation policy
- Capital cost structure modeled with **trends over time**
- Operational costs modeled for: **Maintenance, Churn, Decommissioning, Connection, Rental, Usage and Operation costs**
- Models **keeps track and history** for all these capital and operational costs components for later reverse cost allocation



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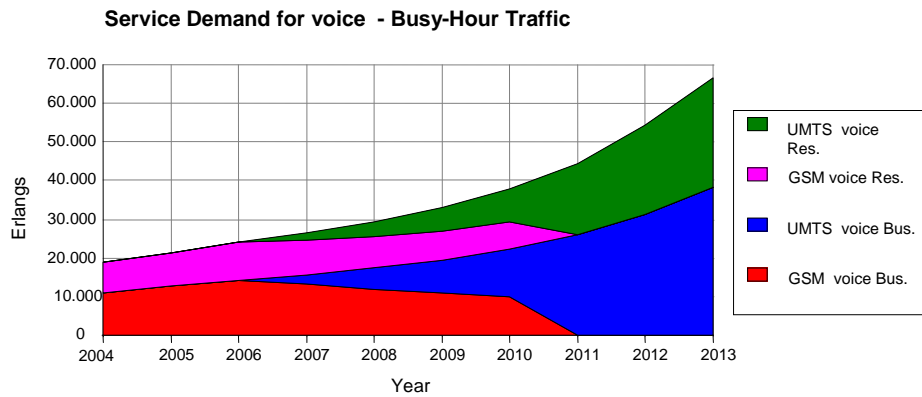


Business Planning and Migration to 3G Support tools: Business

- **Required functionality for Business tools**
 - Service Demand Projection
 - Dynamic modeling for technology **substitution and migration rates**
 - Dimensioning **multiple flows** (circuit and packet modes)
 - Evaluation of network resources and associated investment (CAPEX)
 - Evaluation of revenues for given tariffs and installation rate
 - Modeling **multiple resource lifetimes**
 - Modeling of demand elasticity to tariffs
 - Interrelation between network growth and operational cost (OPEX)
 - **Cost assignment** as a function of utilization rates
 - Generation of standard financial results like Cash Flow, Profit & Loss, Balance Sheet, NPV, IRR, etc.



Business Planning and Migration to 3G Typical planning results



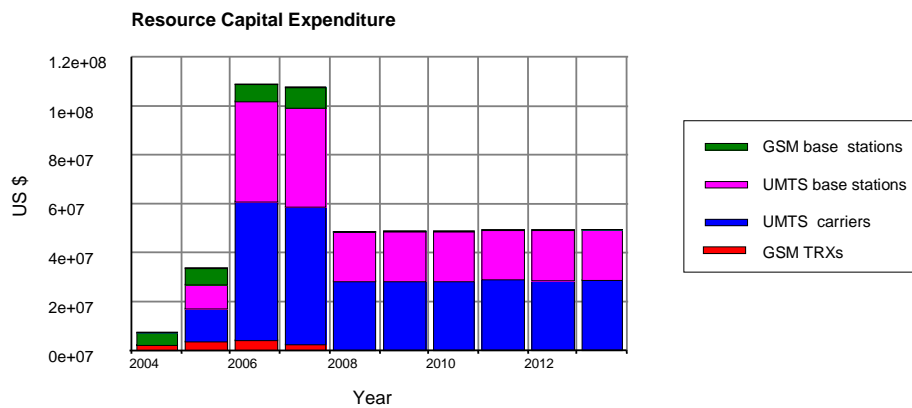
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Business Planning and Migration to 3G Typical planning results



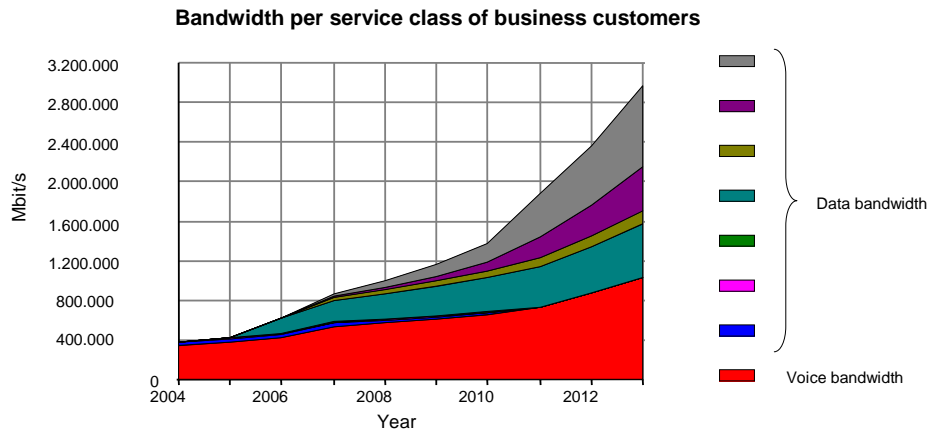
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Business Planning and Migration to 3G Typical planning results



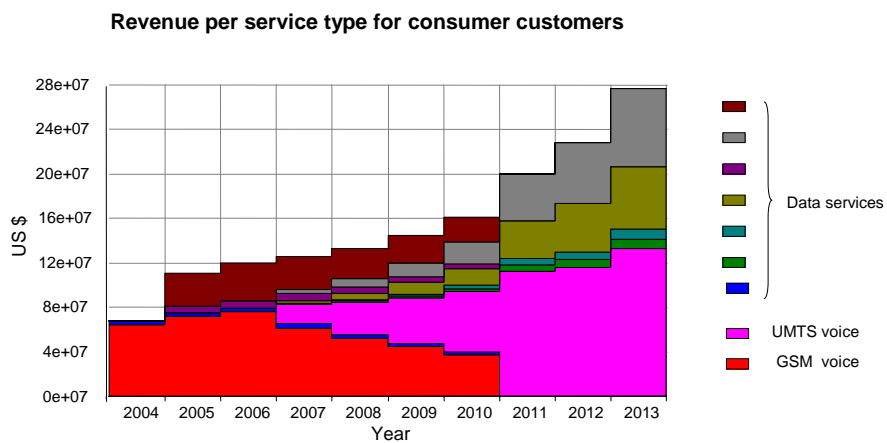
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Business Planning and Migration to 3G Typical planning results



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Business Planning and Migration to 3G Conclusions

Key economic factors have to be considered with dynamic models and validated

High impact of sharing factors and take-up rate in the profitability

Critical multiple dimensioning criteria for QoS in 3G

Powerful support tools needed