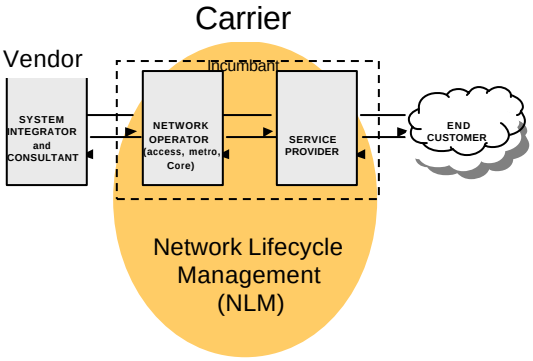
ITU Seminar

Bangkok, Thailand , 11-15 November 2002

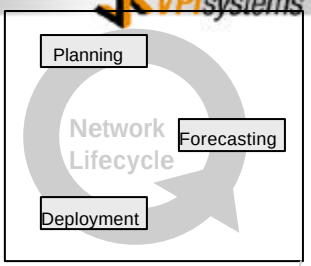
Session 5.5

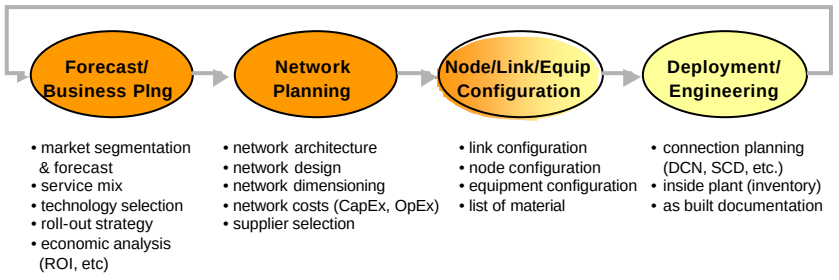
VPI: Strategic Planning with VPIaccessMaker™: Market Description, Forecasting, Clustering, Economic Analysis

VPIsystems provide software
for
demand-driven network deployment

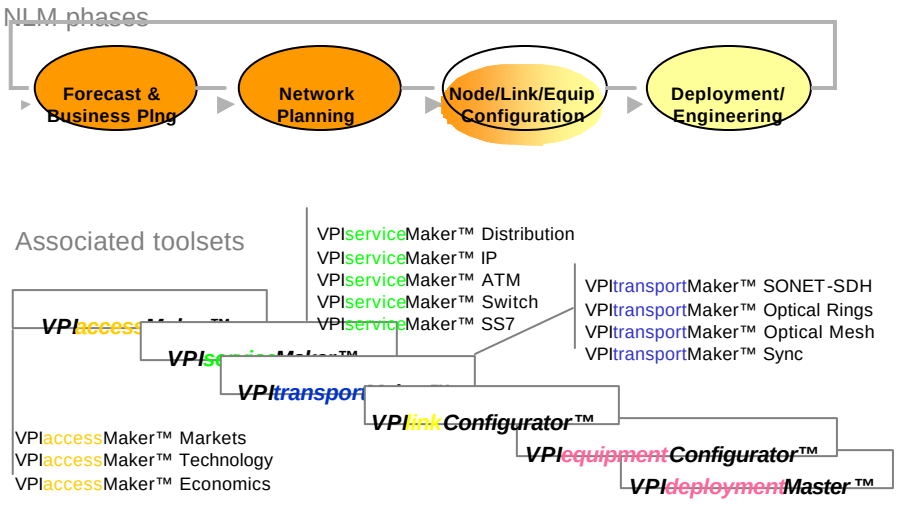


Network lifecycle management
Major phases and tasks





NLM phases and the associated toolsets



VPIsystems intends to partner with ITU-D for the benefit of the developing countries

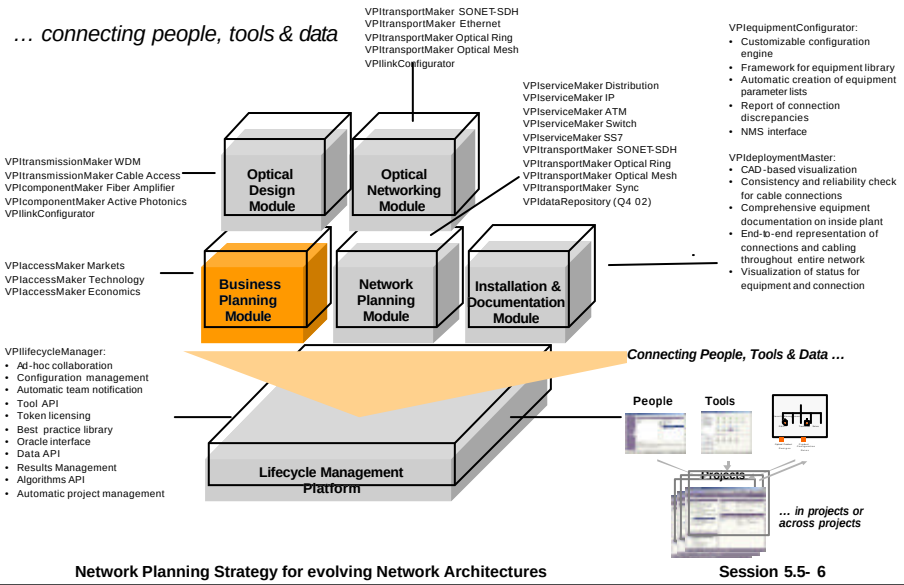
Proposal

- ITU-D to provide their first-class & well known enabling and training services to the incumbant network operators
- VPIsystems to support this effort by providing packages of their software tools, specially tailored for the needs of the developing countries

Benefit

- know-how on network development is being built locally while commercial software is being introduced simultaneously

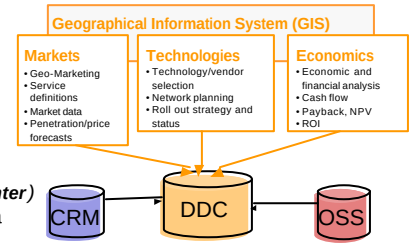
VPI Design & Deployment Center



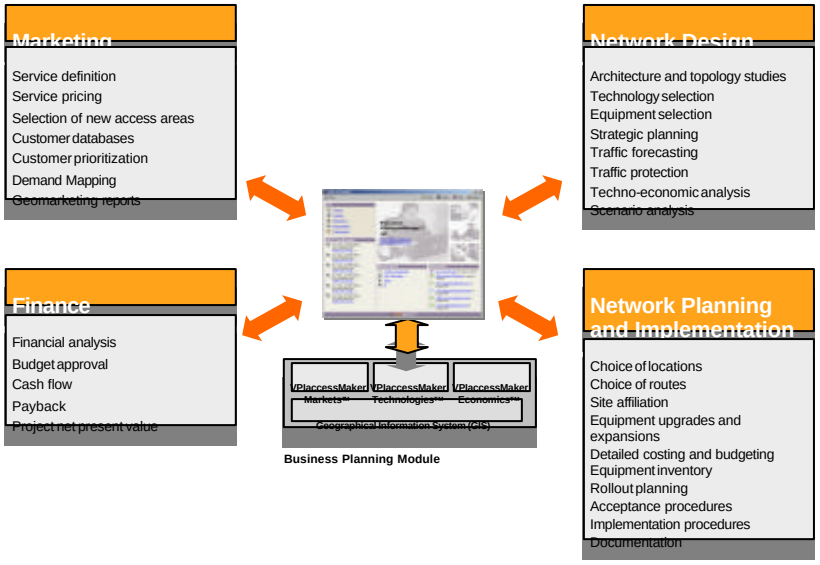
Business Planning Module ? VPI Answer

The VPI **Business Planning** software module addresses efficiently and seamlessly the various problem domains and the complex issues involved in planning broadband access networks through a powerful workflow of strategic planning tasks, including:

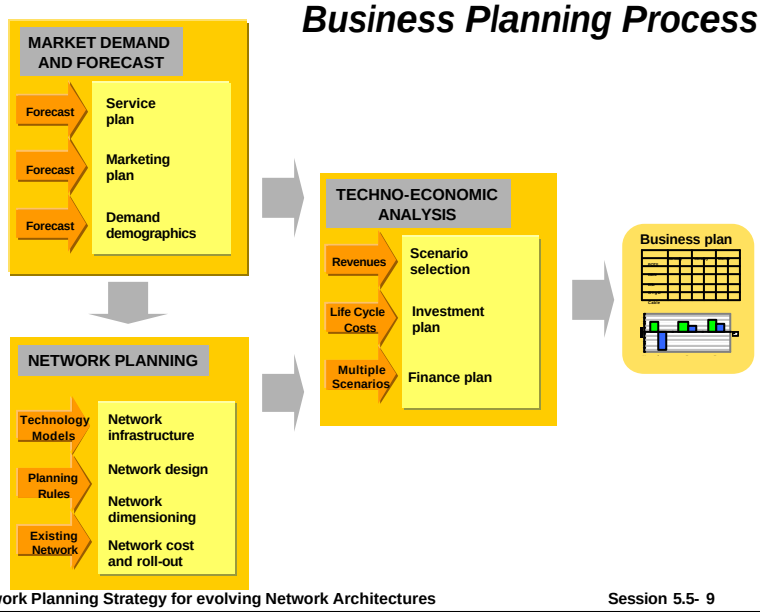
- ✓ Sophisticated market capture, prediction and reporting systems (***VPIaccessMaker Markets***)
- ✓ Geographical information system (***VPIaccessMaker GIS***)
- ✓ Flexible multi-technology modeling (***VPIaccessMaker Technologies***)
- ✓ Design synthesis algorithms and rollout reporting system (***VPIaccessMaker Technologies***)
- ✓ Effective economic analysis tools (***VPIaccessMaker Economics***)
- ✓ Collaborative working environment (***VPI D&D Center***) for seamlessly connecting people, tools and data



Connecting People, Tools and Data

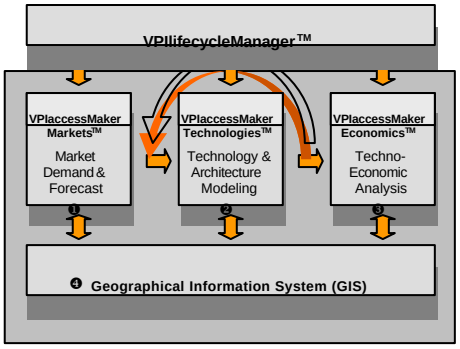


Access Network Business Planning Process



Inside the Business Planning Module

Business Planning Module



1. Geomarketing aspects such as service definitions and customer demand mapping are addressed by VPIaccessMaker™ Markets.
2. The network -planning phase including access technology selection and the architecture modeling process is handled by VPIaccessMaker™ Technologies.
3. Business analysis such as techno-economic assessments and comparisons are performed using VPIaccessMaker™ Economics.
4. All geographical aspects such as area maps, customer locations or network layout are handled by the geographical information system (GIS).

VPIaccessMaker Markets

Market definition

- Definition of services classes (bandwidth, nature)
- Creation of customer classes (service mixes, tariffs, lines)
- Definition of densities classes (as mixes of customer classes)
- Flexible planning period

Evolution forecasting

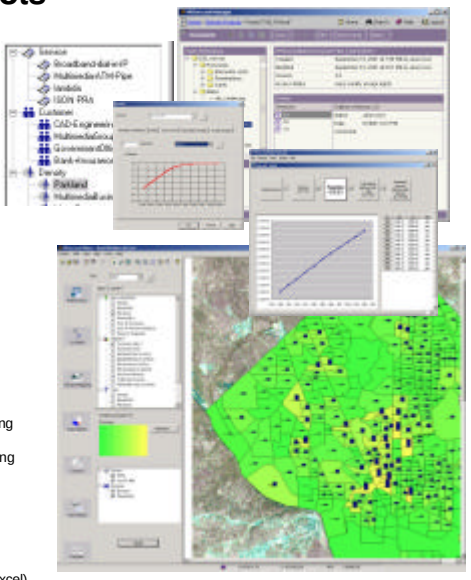
- Tariffs
- Market penetration
- Traffic prediction
- Component costs
- Forecast calculator (e.g. times series, linear regression)

Demand mapping

- Import of raster and vector maps for background information
- Definition of service areas (sub urban, down town, etc)
- Geometrical modeling of service areas (area grids)
- Exact site locations (skyscrapers, business offices, etc.)
- Defining site grids to simulate BLEC projects and model in-building networks
- Defining outside plant cost regions for accurate OSP cost modeling
- Import/export market demand from Excel or from GIS files

Geomarketing results

- Extensive and flexible user defined query system
- Results are displayed on the GIS (selected year)
- Results are displayed on annual tables & charts (exportable to Excel)



Market capture for a service provider

VPIaccessMaker Technologies

Technology modeling

- Specification of network infrastructure (nodes and links)
- Specification of network elements (nodes and links)
- Specification of interfaces (upstream, downstream)
- Modeling of multiple interfaces
- Planning rules (bandwidth, distances)
- Precise cost modeling: acquisition, installation, maintenance, operation, depreciation
- Chains as connection of nodes and links for topology modeling

Network design optimization

- Optimization clustering algorithm generates blue-print design proposals
- Satisfy bandwidth requirement from all demand points
- Satisfy technological specifications and constraints
- OSP cost regions for modeling the effects of variations in OSP costs on a regional or local basis
- Support of multiple technologies
- Considers legacy infrastructure
- Manual fine tuning of the network layout for accurate OSP cost estimation

Roll-out results

- Calculate automatically all network costs
- Each element (node or link) has its own set of results (interfaces, costs) exportable to Excel
- Multiple roll-out with different technologies
- Bill of materials
- Extensive and flexible user defined query system
- Results are displayed on the GIS (selected year)
- Results are displayed on annual tables & charts (exportable to Excel)

Modeling a PON network deployment in a city center

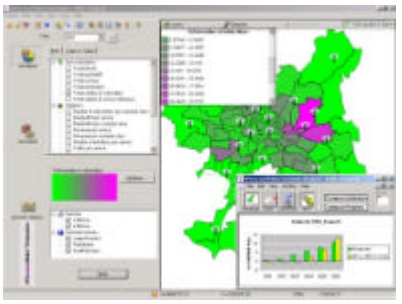
VPIaccessMaker Economics

Financial calculations

- ✓ Project revenues
- ✓ Project cost structure
- ✓ Project cash-flows
- ✓ Project net present value

Scenario analysis

- ✓ Full geographical visualization of the business case
- ✓ Specification of network infrastructure (nodes and links)
- ✓ Various scenarios can be compared in terms of the main economics indexes
- ✓ All data exportable to Excel



Return on investment from a FWA deployment in a metro area

Business Planning Module Benefits

Increased accuracy in planning CapEx and OpEx

- ✓ Accurate market demand capture
- ✓ Demand driven CapEx and OpEx planning
- ✓ Deployment costs are forecasted with greater accuracy
- ✓ Vendor selection is based on real market situations and true product techno-economics
- ✓ Assists in the development of costing metrics (cost per Mbps, cost per customer)

Reduced time-to-market

- ✓ Facilitates decision making on network deployments
- ✓ Facilitates RFQ, RFI preparation and vendor benchmarking: market driven scenarios, common data format (VPI)
- ✓ Better reporting for increased visibility and improved decision making
- ✓ Re-usability of data