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Geospatial Information Mapping with Business Processes Framework (e-TOM) for Telecom Operators

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May 1, 2012

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Agenda

- Introduction - Telecom Business Lifecycle
- What is TMF’s e-TOM Business Process Framework
  - Business Process Level 1
  - Business Process Level 2
- How can GIS Information be Integrated with e-TOM Business Process
- Conclusion
- Infotech Services Offerings
Typical Telecom Customer Life Cycle

- New Customer
- Customer Order
- Order - Orchestration
- Order - Fulfillment
- Usage
- Payment
- Adjustment
- Complaint
- Bill
High Level Overview on Telecom Ops Processes

TMN Layers correspond with TOM horizontals

TOM processes are captured in “FAB” area of eTOM Operations

eTOM maps with ITIL
What is TMF’s e-TOM (Business Process Framework)

The Business Process Framework (eTOM) is a widely deployed and accepted model and framework for business processes in the Information, Communications, and Entertainment industries. As a key part of TM Forum's Business Process Framework represents the whole of a Service Provider's enterprise environment in a hierarchy of process elements that capture process detail at various levels:

- **Strategy, Infrastructure, and Product (SIP)** - covering planning and lifecycle management
- **Operations** - Covering the core of operational management
- **Enterprise Management** - Covering corporate or business support management
eTOM Business Process Framework – Level 1

**Strategy, Infrastructure & Product**
- Strategy & Commit
- Infrastructure Lifecycle Management
- Product Lifecycle Management
- Marketing & Offer Management
- Service Development & Management
- Resource Development & Management (Application, Computing and Network)
- Supply Chain Development & Management

**Operations**
- Operations Support & Readiness
- Fulfillment
- Assurance
- Billing & Revenue Management
- Customer Relationship Management
- Service Management & Operations
- Resource Management & Operations (Application, Computing and Network)
- Supplier/Partner Relationship Management

**Enterprise Management**
- Strategic & Enterprise Planning
- Enterprise Risk Management
- Enterprise Effectiveness Management
- Knowledge & Research Management
- Financial & Asset Management
- Stakeholder & External Relations Management
- Human Resources Management
# eTOM – Business Process Framework – Level 2 - SIP

<table>
<thead>
<tr>
<th>Strategy, Infrastructure &amp; Product</th>
<th>eTOM 4.0/5.0/6.0/7.0/8.0 SIP</th>
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<tbody>
<tr>
<td><strong>Strategy &amp; Commit</strong></td>
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<td><strong>Marketing &amp; Offer Management</strong></td>
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<td>Market Strategy &amp; Policy</td>
<td>Product &amp; Offer Portfolio Planning</td>
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<td>Marketing Capability Delivery</td>
<td>Product &amp; Offer Capability Delivery</td>
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<td>Supply Chain Capability Delivery</td>
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eTOM – Business Process Framework – L2 - Enterprise Management

Enterprise Management

Strategic & Enterprise Planning
- Strategic Business Planning
- Business Development
- Enterprise Architecture Management

Knowledge & Research Management
- Knowledge Management
- Research Management
- Technology Scanning

Enterprise Effectiveness Management
- Process Management & Support
- Enterprise Quality Management
- Program & Project Management
- Enterprise Performance Assessment

Financial & Asset Management
- Financial Management
- Asset Management
- Procurement Management

Enterprise Risk Management
- Business Continuity Management
- Security Management
- Fraud Management
- Audit Management

Human Resources Management
- HR Policies & Practices
- Organization Development
- Workforce Strategy
- Workforce Development
- Employee & Labor Relations Mgt

Stakeholder & Ext. Relations Management
- Corporate Comms & Image Mgt
- Community Relations Management
- Shareholder Relations Management
- Regulatory Management
- Legal Management
- Board & Shares/Secur. Management

ITIL Service Continuity Management
- ITIL Service Catalogue Management
- ITIL Service Level Management
- ITIL Capacity Management
- ITIL Availability Management
- ITIL Incident Management
- ITIL Request Fulfillment

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Customer Relation Management – Geospatial Information

- **Management and analysis of sales activity and sales opportunities and longer-term trend analysis on product, sales and customer by using GIS/BI Tools**

- **Managing all interfaces between the enterprise and potential and existing customers, by taking customer data with applying location in GIS application**

- **Responsible for managing prospective customers, for qualifying and educating customers, matching customer expectations and map with GIS**

- **Location-based patterns in customer churn due to quality problems relating to specific equipment/network causing quality problems or targeted marketing**
To ensure the network infrastructure (both physical and logical) is in place to support new customer services by using GIS Network tools.

Allocation, implementation, configuration, activation and testing of specific services to meet customer requirements and applying GIS Maps.

Respond immediately to customer-affecting service problems or failures in order to minimize their effects on customers, to invoke the restoration of service.

Encompasses monitoring, analyzing and controlling the performance of the service perceived by customers. Through GIS network Trace.

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Service Management and Operation – Geospatial Information

Infotech
Creating Business Impact
Service Management and Operation – Geospatial Information

To ensure the network infrastructure (both physical and logical) is in place to support new customer services by using GIS Network tools.

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Respond immediately to customer-affecting service problems or failures in order to minimize their effects on customers, to invoke the restoration of service.

Encompasses monitoring, analyzing and controlling the performance of the service perceived by customers. Through GIS network Trace.
Resource Management and Operation – Geospatial Information

To allocation, installation, configuration, activation and testing of specific resources to meet the service requirements by using GIS Inventory System.

Detecting, analyzing, managing and reporting on resource alarm event notifications by using NOC GIS Maps – OTDR Test (Logical to Physical System).

Mediate Usage Records processes is to validate, normalize, convert and correlate usage records collected from various pieces of equipment in network, show GIS map.

Managing the staff performing manual activities along with managing the actual activity being performed. Issue WO, Close WO and lifecycle.
Supplier/Partner Relationship Management – Geospatial Information

- **S/PRM Support & Readiness**
- **S/P Requisition Management**
- **S/P Problem Reporting & Management**
- **S/P Performance Management**
- **S/P Settlements & Payments Management**
- **S/P Interface Management**

**Geospatial Information**

- Processes manage requisitions with partners/suppliers to ensure on-time and correct delivery of the product or service requested, information shown GIS System.
- Arranging and managing supplier/partner access to appropriate service provider problem and/or trouble management support tools and Show all Supplier list GIS Map.
- Manage all settlements and billing for the enterprise, including bill validation and verification and payment authorization with GIS Interface.
Marketing and Offer Management – Geospatial Information

To develop strategies for products at the portfolio level. The decision is made as to which product types the enterprise wants or needs to offer by GIS/BI.

To develop the Sales support and response for new and existing products and services, as well as existing and potential customers and show in GIS system.

Manage the delivery and build of new or changed market capabilities or customer-related capabilities based on consumer data and link with GIS maps.

Processes manage the delivery and build of new or changed market capabilities and customer-related capabilities with GIS maps.
To develop a strategic view and a multi-year business plan for the enterprise’s services and service directions, and the parties who will supply the required services.

To Plan and deliver the total capabilities required to deliver changes to service and plan for area/countr to launch services by using GIS.
To support the long term strategic direction of the business, the existing network infrastructure needs to be understood, the future demands on the network analysed,

Physical Network Inventory acts as the central repository for all network infrastructure and supports the planning, engineering process by GIS Inventory

Resource Development & Retirement processes develop new, or enhance existing technologies and associated resource types, by using GIS Process
Ensure that the enterprise complies with all relevant legal requirements by regions wise by using GIS maps with Thematic mapping.

To manage relationship between the enterprise and its shareholders, consistent with all business, financial, legal, and regulatory requirements.

Physical Network Inventory holds the status of all network management assets. As regulations are imposed for reporting on network operation.
End to End View of Telecom Operations

CSR, Self Provisioning or Third-Party (Web Access)

Order Entry/CRM

Order Entry and Validation

Business rules

Order Management

Billing

Account Data

Rating

SLA Violation Impact and SLA Rebates

Exception Handling

Commercial Orders

Service SLA Updates

Revenue Reporting

ERP

Order Management

Service SLA Updates

SLA Management

Settings

Technical Order Service Definitions

Fault Management

Network Planning O&M Network Updates

Logical Inventory System Provisioning

TT Management

Network Discovery

Network Activation

Fault Management

ERP

Network Updates

Network Discovery

OpenNMS

HP OpenView

HP OpenView ManageEngine

ORACLE ERP

ORACLE OSM

ORACLE NI

SAP

SmallWorld Network Engineer

GComms

Zira CRM

Siebel

SalesForce

CRAMER SE

CRAMER AE

ASAP

Metasolv

Granite

Verisma

SmallWorld NETWORK ENGINEER

GComms

Zira CRM

Siebel

SalesForce

Cramer SE

Cramer AE

ASAP

Metasolv

Granite

Verisma

Physical Inventory

Enterprise Resource Planning

Order Entry

Customer/Billing Updates

Service SLA Updates

Technical Order

Service Definitions

Topology and Impact Data

Data Collection

(Fault, Performance etc)

Network Planning

O&M

Network Updates

Automated Activation

Network Capacity Planning

Access Planning

Network Performance Management

Fault Management

TT Management

Performance Management

Revenue Reporting

Route Planning

Backhaul Planning

Network

Network

Route Planning

Backhaul Planning

Network

Access Planning

Network Capacity Planning
Resource Management – OSR/F/A- Process Workflow
Physical Network Inventory – Outside Plant (OSP)

Key PNI Products (OSP)
- Telcordia NE
- GE Smallworld PNI
- Intergraph G/Technology
- Bentley/Autodesk

Ref: Source Google
Physical Network Inventory – Inside Plant (ISP)

Key PNI Products (ISP)
- Telcordia NE
- GE Smallworld PNI
- Intergraph G/Technology
- Bentley/Autodesk

Ref: Source Google
Logical Network Inventory – LNI

Key LNI Products
- Telcordia Granite
- Amdocs Cramer
- Oracle Metasolv
- Net Cracker
Network Operation Center (NOC) with GIS

Source: ESRI
OVERVIEW

- One of the largest implementation of Telcordia Network Engineer (NE) globally
- Part for the BT Network Engineer Journey to redefine BT’s network management as it implements 21CN

SOLUTION

- Data conversion of the 6500 exchanges
- Provision of consultancy services
- Application development on the NE platform
- Training, floor walkthrough and production support
- Backlog capture and data improvement
- Spline and Core Network Planning

BENEFITS

- Superior OSP network system
- Reduced planning and design time enabling faster time to market
- Minimum cost of failure and service delays
- Better report generation and analytics
Enterprise GIS– An Unified GIS System for Indian Telecom Operator

OVERVIEW

- The client provides services through four lines of business (LoB)
- They had been using two different GIS systems having disparate database and applications for their Mobile and Broadband services
- For the other two LoB’s, there was no GIS in place
- An enterprise wide GIS was required to unify the systems.
- System to support the group activities comprising Internet, V-Sat, Gateway

SOLUTION

- GE Smallworld based GIS system based on Oracle database
- Integrating telecom network with operations like Network Monitoring, Fault Management, Work Force dispatch
- Integration with RF wizard catering to WLL services, TIMs, Oracle databases, etc
- Integration with Marketing and Billing Systems
- Two Phases
  - Phase – 1: Small World System / Data modeling / Application development for Operations
  - Phase – 2: Integration with OSS like TIMS and Marketing Systems, WLL Module

Infotech has currently partnered with Alcatel Lucent to perform the Fiber Field Engineering/Audit services for our client. The field audit data is being uploaded into the inventory system by our teams.
Sales/Marketing Management – Opensource GIS Platform

OVERVIEW

- Enterprise GIS based Web Application for Sales & Distribution using Open source GIS technologies.

SOLUTION

- Integration of the Google Maps
- Display of demographic data
- Map search functionalities – Google Map Based and Dealer POI Search.
- Query Manager
- Custom Report Generation and Display
- Query results – Bar charts, tables and export functions.
OVERVIEW

- GIS Based Feasibility Customer Care Application

SOLUTION

- This website is primarily used by Telecom Service team, Sales team, and outlets to find the feasibility of the DP to provide a new telephone connection and high-speed Internet and IPTV connection for new customers or existing customers.

- It is also used to locate telephones, IDs, electricity, and pay-phone numbers. This system provides detailed information about cabinets, DPs, and route cards.
GIS Community should recognize the standards accepted by the TM Forum in an effort to help meet the telecommunications industry’s need for geo-spatial analytics and visualization and talk TMF communication Language

To reduce the cost and risk of deploying spatial technology

Identify Geospatial/Location Information from each individually department ‘business requirements’ and integrate with Enterprises GIS across the company

Build enterprise wide Geographic Information System (GIS) and integrate the same with existing OSS / BSS systems
Thank You

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Infotech OSS SERVICE OFFERINGS:

**End to End OSS Solutions**
- Business & Process Consultancy
- Workflows and Orchestration
- COTS and Customized Products Rollout
- Applications Development
- Data Services

**Integration Services**
- Integration Strategies
- Standard based Solutions
- Custom Integrations (MTOSI)
- Application Customization
- Testing
- Maintenance
**OSS SERVICE OFFERINGS**

### Business and Process Consultancy
- **Assessment**: Need, Business value, Roadmap, Transition, Support
- **Business Development**: Business Case, RFX Creation and responses, ROI Analysis, TCO Analysis
- **Optimization**: “As-is” and “To-be” Architecture designing
- **OSS Architecture Development**: Business, Information and Application architecture designing

### Work Flows and Orchestration
- Service qualification, Service designing, Provisioning, Activation, Inventory reconciliation & Shortfall, Fault and Escalations, Fault Localization

### COTS & Customization Products Rollout
- Strategy/Plan, Scoping, Design, Build, Transition Rollout, Operate
- Turn-key, Manage Services, Partial

### Application Development
- **B2B**: Web Application for OSS, Reporting Tool, Business Analysis tool
- **B2C**: Web Portal

### Data Services
- Migration, Conversion, Cleansing, Maintenance, Creation-Entry, QC

### Integration Strategy
- Point to Point, Database level, ESB based, Processed based, Trigger based, Batch process, Discovery & Reconciliation

### Standard Based Solution
- TMF-FAB, SID, MTOSI, ITUT-FCAPS, TMF814, TMF854

### Custom Integration
- OSS-OSS, OSS-BSS, OSS-NMS, OSS-BSS-NMS
INFOTECH OSS SUITE

# Business Architecture
# Information Architecture
# Application Architecture
# Technology Architecture

# Service Designing
# Process Designing

# Process Orchestration
# Order Decomposition

# Physical Inventory (GIS)
# Logical Inventory (OSS)

# Resource Provisioning
# Service Provisioning

# Alarm Management
# Trouble Ticketing

# OSS NMS
# Standard Based

# Health check-up
# Capacity or threshold

# Alarm Management
# Trouble Ticketing

# OSS NMS
# Standard Based

# Health check-up
# Capacity or threshold

Across the Telecom Services