



COMPANY HISTORY

Established in 2006, Telecom Services & Consultants (TSC) is a consulting company providing services in RF, Transmission, Network, Complete Project & Resource Management, HR Outsourcing, Technical Audit, IT Technical Support, Software application and development areas.

With offices and operations located in Pakistan, Afghanistan and USA, TSC is providing wide range of consulting services covering both IT and Telecom arena. Business analysis, company acquisition, launch of new business or product, outsourcing and network optimization are some of the areas where we can provide assistance to telecom services providers and equipment manufacturers. Our consulting services help to manage cost, improve productivity and increase revenue.



Tel-e-com is focusing on providing business process outsourcing (BPO) solutions to its customers. Our assets are our full time talented staff and access to seasoned, multilingual, best-in-class professionals. Having worked in wireless operations in Pakistan, Middle East and USA, **Tel-e-com** team members apply objective competence and industry standard tools to mission-critical projects, provide end to end outsourcing solutions and deliver unparalleled service. The team can effectively manage the lifecycle of every project to ensure that client needs are successfully met.

Tel-e-com has the capability and expertise to provide different telecom services for operators and vendors. Our services range from network inspection to **vendor management** understanding very well that a well maintained network will require less corrective maintenance and will be easier and more reliable to operate. **Tel-e-com** has the capability to provide following end to end services:

Consulting Services

At TSC we believe consulting is all about finding ways to make business more effective and efficient - about giving a source of competitive advantage. We focus on business needs of our customer and provide solutions based on our expert judgment.

Our consulting services include:

- Business Consulting and Planning
- Telecom Consulting
- Network Consulting

• Business Consulting and Planning

We offer wide range of business solutions including business opportunities and risk management, to meet the needs of clients in a professional and procedural manner. Services are provided for supporting investment decisions to maximize returns (ROI) or minimize risks, on which ultimate business success is based.

We provide Business consultancy services in following domains:

- Strategy Planning
- Business Planning
- Sales and Marketing Model
- Viability Analysis
- Infrastructure Requirement Analysis
- Growth Strategy
- Implementation Strategy
- Process Management
- Merger and Acquisition

TSC helps evaluate options and potential outcomes by expanding business beyond boundaries.

• Telecom Consulting

TSC experienced consultants with wide range of industry experience offer Real Business value and innovative consulting services in business, telecom and network domain.

- **Radio Frequency (RF) Services**
Services offered by TSC in RF:
 - RF planning and design
 - RF Drive Testing



- RF Optimization
- RF Benchmarking

- **Transmission Services**

1. Design Services
 - a. Nominal Planning
 - b. LOS Survey
 - c. Path Calculation
 - d. Frequency Planning
 - e. Interference Analysis
2. Field Services
 - a. Pre-Installation Survey
 - b. Installation & Commissioning
 - c. Link Performance Testing
 - d. As-built reports and drawings
 - e. Acceptance & Certification
 - f. Relocation of Antenna's
3. Up-gradation of LIVE Links
 - a. Capacity Upgrade
 - b. SDH to SPDH Upgrade
 - c. Hot Standby to Space diversity
4. Logistics Management
 - a. Transportation of equipment from warehouse to sites and vies-a-viesRepair and Return



- **Network Consulting**

We offer wide range of Network consulting services to suit our client's business requirements. We can provide services on all domains of wireless and wired networking technologies including Vendor selection, Planning, Design, Implementation etc

- Vendor Selection
- Network Planning
- Network Design
- Network Implementation
- Network optimization

Network Operation and Maintenance Services

Preventive Maintenance

- Weekly cleaning of the site
- Monthly cleaning of the filters or modules as per defined procedures
- Assistance in the deployment activities
- Checking of Site Grounding
- Inspection and maintenance of Earth Box/terminations (including greasing etc.)
- Inspection and maintenance of Cooling systems (Air-cons)
- Inspection and maintenance of Gensets, MW links, Antenna and Feeder Cable systems
- Recording and reporting, issues/observations about effectiveness of BTS site security measures/system (Security Gaurds).
- Monthly drive test for checking of Site's defined KPI's



Corrective Maintenance

- 24X7 Customer Support Desk for logging of alarms reported
- Alarm responding within defined time frames between Vendor and Operator
- First line BSS supports includes the replacement of faulty modules like radios, digital boards or rectifiers and carrying out all first line procedures to bring site on-air.
- Handling and clearing of the EAS/IAS alarms
- Clearance of any issue related to Power Companies.
- Clearance of issue and coordination between Generator and Air-Con vendors for clearance of the alarms.
- Replacement of faulty bulbs/tube lights.
- Checking and clearing of the alarms on the Transmission links
- Actions on Issues affecting Network KPI's
- Maintaining small warehouse for the replacement of faulty parts
- Transportation of Faulty parts from Warehouse to Affected site
- Liaison between Power Companies to rectify power related issues

GSM/CDMA Network Audits

TSC performs end-to-end network audit to evaluate and optimize the performance of network. The audit process addresses technical evaluation as well as identification of KPI's, BoQ's, Quality of work for on site installed equipment i.e. Radio, Transmission, BSS and Civil works.

Network Audit includes:

- Civil Audit
- BSS Audit
- Transmission Audit
- RF Audit

- **Civil Audit**

In Civil and Infrastructure Audit we perform inspection of Greenfield and roof top sites. We perform environmental assessment, design verification, physical site inspection, audit of BTS site infrastructure according to site drawings including Layout verification, Lease Agreement and ownership verification. It includes:

- Audit of Greenfield and Roof top towers.
- Foundation design and tower design verification
- Building stability analysis for roof top site and check for additional loading
- Evaluation of site for sharing purpose by analysis of loading capacity and space availability.
- Tower strengthening measures if tower is capable to bear extra load as more than that of design.



- **Base Station Subsystem (BSS) Audit**

In BSS audit, we check for BOQ (Bill of Quantity verification), quality of installation. BOQ's will be required to verify all the equipment installed:-

- BTS Antenna and Feeder cable Installation
- BTS Visual Installation check
- BTS Cabinet Checks are performed.
- Hardware and software alarms are checked.
- Physical capacity of the site.
- The antenna height along with type, tilt etc
- RF coax cable connections, Cable return loss
- Sector orientations

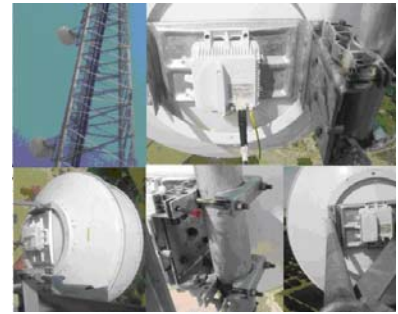
- Testing of grounding field strength, percent service availability, base-to-mobile and mobile-to-base signal levels.

- **Transmission Audit**

In TXN audit installation quality is checked. Site quality audit is carried out to check the quality of installed equipment make sure that all equipments are installed in right way.

Audit includes inspection of Quality of Installation along with physical condition of tower and site. The audit data collection identifies:

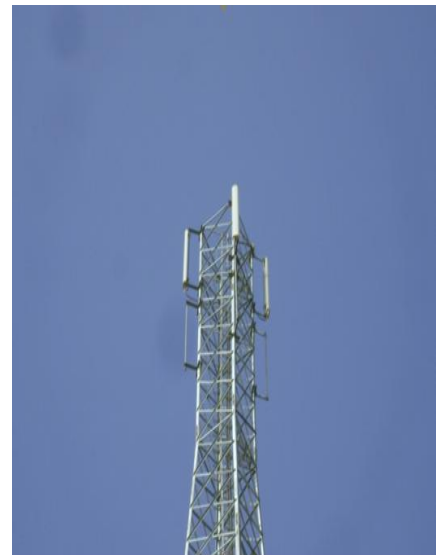
- Site coordinates,
- Site ground level above mean sea level,
- Tower height, antenna heights on tower,
- Pointing azimuth of each antenna,
- Transmission line types and lengths,
- Transmitter and receiver nomenclatures,
- Number of standby transmitters and receivers,
- Tuned frequencies of all operating equipment,
- Transmitter power outputs and Received input levels.



- **RF Audit**

In RF Audit we check the following major events through RF Drive Test and then analyze the Log files with proper solution.

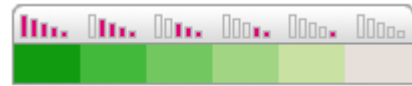
- Coverage of service area: Urban, suburban, rural and inside building
- Intra and intercell handover
- Call success rate
- Rx Qual / Rx Lev.
- Checking antenna orientation as per design, end to end connection of feeder cable
- Verifying that the RF implementation matches the RF design sheet
- Readjusting down tilts if incorrect
- Analysis of Block calls, Dropped calls, Handover failure.
- Coverage problem analysis:
 1. Coverage Hole
 2. Overshooting cells





Benchmarking Services

Tel-e-com can analyze specific isolated problems through extensive testing of the network. It is these identified areas in a network where subscribers might get better service from a competitor. By benchmarking these areas with Q.o.S reports, different divisions within the company – management, operations & engineering and /or marketing – get updated competitive understanding of their network’s performance on overall basis.



Site Acquisition

TSC has the right tool, expertise and skilled resources to perform site acquisition and technical site survey. Our professional approach and experience of working with land owners and local authorities leads to handling all types of site acquisition issues. Our site acquisition services include identification and survey of site, site selection and negotiation with land owners. We select and acquire site for customers according to their requirements and within their budget.

We conduct technical site survey (TSS) and TSS reports are produced to deliver a detailed view of specific site’s possibilities. Our detailed report includes information regarding soil test results, site size, site map and access information, hand sketch for site design, LOS survey results, and landlord details. Finally we negotiate with land owners and acquire site at the front end.

Software Applications & Development

TSC has access to application developers with experience in the corporate sector. We can develop and customize applications for specific needs of the company.

The other prime activity of Tel-e-com is to provide all types of engineering and business services for IT/telecommunication area. The scope of services includes but not limited to Design assistance or verification, Installation & Commissioning, Project management, Implementation, O&M services, Training & Development. One of our software application specifically developed for wireless telecommunication service providers and vendors is **NetMax**. It enables wireless telecommunications service providers to manage the processes associated with site rollout, upgrading site and maintaining complete log of different sites located in different regions. The product provides full support for candidate site selection, conditions, access to sites and detailed information of Antenna’s and equipments already installed along with BoQ, transmission media info, inventory, invoice management and rich reporting capabilities. NetMax empowers management staff and engineers alike, with the information maintained in the system enable timely and efficient rollout of wireless service





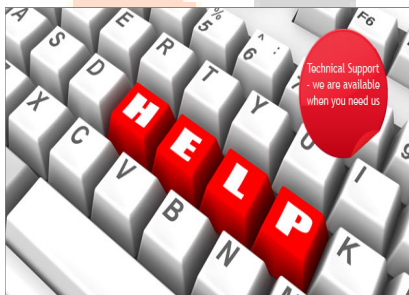
providers cellular sites. It can support the business from the early stages of selection of site, through to whilst rolling out the network and indeed helps in expanding and upgrading an existing site.

Project Management & HR outsourcing

- **Complete Project Management**
- Subcontractors selection and management
- **Resource Management & cost control**
- Inventory Control Management
- Logistics Control Management
- Spares Management
- We can monitor Q.o.S of all areas
- **We can help ensure fast & timely Rollout**
- Design Documentation
- We can provide project specific HR resources



IT Technical Support Services



- LAN/WAN Installation and Management.
 - Customized support programs for customers
 - In house support and training for all your IT needs
 - Network security
 - Software support services
 - Data services
 - Complete network management & support
- Taking Backup of Windows Server, DHCP Server (Linux), Router Configurations.
 - Broadband services (installation, maintenance, customer support, etc)
 - Content Management
 - IT Help-Desk services (entry, conversion, scanning, indexing, processing, etc)



Clients





Why Chose TSC team?

- **Proven track record & highest quality talent:** A track record and combined experience of almost 100 years of outstanding delivery within the Telecom sector.
- **Demonstrated industry leaders:** On our team are consultants with personal reputations that are held in high regard within the sector and who have participated in the growth of Pakistan's record telecommunications growth.
- **Experienced in both developed and emerging markets:** Detailed knowledge of both developed and emerging markets including a comprehensive understanding of the operational and cultural challenges of working in Pakistan, the Middle East and USA.
- **Providing a full service portfolio:** We have the capability to provide end to end solutions to most critical problems or challenges faced by the telecom companies.
- **Value for money:** We operate with low overheads and have flexible pricing models thus allowing us to offer you exceptional value.
- **Dedication:** All senior members of our team are personally involved in all projects and take personal responsibility for ensuring successful delivery.
- **Knowing what works:** We have experience in small and large enterprises and thus can deliver practical advice and solutions that can be implemented in the real world
- **Skills:** We have in house skills in the IT/Telecom area or have ready access to the right skills required

TSC team has had the privilege to work with the world's leading Operators, manufacturers and content providers. Here are just some of the companies that TSC team members have served.

HUAWEI/ WARID – GSM: Transmission Planning and Deployment

NSN/TELENOR- GSM: Complete Network Audit

HSTX/UFONE - GSM: Transmission Planning and Deployment

HSTX/ROSHAN - GSM: Transmission Planning and Deployment

NSN/ROSHAN - GSM: Complete Network Audit

ALCATEL/ROSHAN - GSM: Complete Network Audit

PTCL-UFONE – GSM: Transmission Planning and Deployment

LUCENT TECHNOLOGIES – CDMA: System Performance and Optimization

SPRINT PCS – CDMA: RF Network design, System Performance, Verification

CINGULAR – GSM: System performance, Verification, and Optimization

T-MOBILE – GSM: Drive Test, System Performance, and Demographic Study



International Business Partners



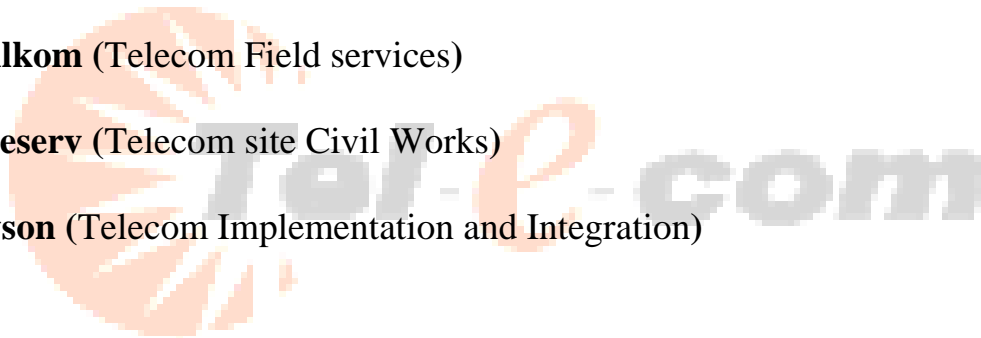
Tel-e-com is also channel partner of Cisco systems.

Local Business Partners

Cellkom (Telecom Field services)

Teleserv (Telecom site Civil Works)

Myson (Telecom Implementation and Integration)





TSC PROJECTS DETAIL

Can be provided on request

Contact Information

Find out how Tel-e-com helps companies become wireless leaders and how Tel-e-com resources can be put to work for your company. Simply call +92-52-280-2500 or send an inquiry to tsc@tel-e-com.com. Our website is <http://www.tel-e-com.com/new5/index.html>

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