TELECOM SERVICES AND CONSULTANTS

CORPORATE PROFILE

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1. CORPORATE INTRODUCTION

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

With offices and operations located in Pakistan, Afghanistan, USA and Dubai in partnership with Telespark, 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.

TSC 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, Afghanistan, Middle East and USA, **TSC** team members apply objective competence and industry standard tools to mission-critical projects, provide end to end outsourcing solutions and deliver unparalleled services. The team can effectively manage the lifecycle of every project to ensure that client needs are successfully met.

TSC 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.

2. 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:

2.1 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.

2.2 NETWORK CONSULTING

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

- Vendor Selection
- Network Planning
- Network Design & Implementation
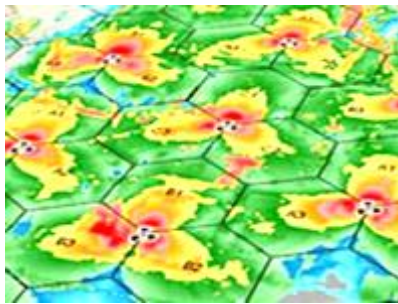- Network Optimization
- Network Security

3. TELECOM IMPLEMENTATION, OPTIMIZATION & INTEGRATION SERVICES

3.1 RADIO ACCESS NETWORK

TSC experienced consultants & engineers with wide range of industry experience offer Real Business value and innovation by providing services in following domains;

2G/3G/4G RF Services

- RF planning and design
- RF Drive Testing both Pre-Launch & Post-Launch
- RF Optimization
- RF Benchmarking
- RF Planning & Design Consultancy Services

Transmission Services

- Design Services
- Nominal Planning
- LOS Survey
- Path Calculation
- Frequency Planning
- Interference Analysis
- NMS Design & Implementation

Field Services

- Pre-Installation Survey
- Installation & Commissioning
- Link Performance Testing & Integration
- As-built reports and

Core Network Services
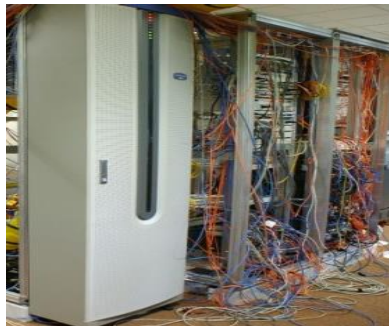
- System architecture design
- IP network and IPSec design
- NGN platform Commissioning & integration
- MGW & MSC server commissioning & integration Functional, resilience and connectivity testing
- Migration to R4 Core configuration
- Routing & Switching
- WAN services & MPLS Networks, VPNs
- Network security & Data Centres

Backhaul
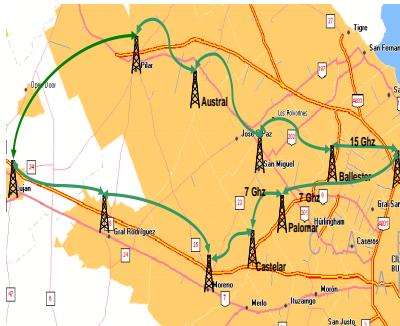
- Design Assistance
- Assistance in Preparation of BOM
- Implementation
- Integrating
- Testing

![Tel-e-com logo]

3.2   NETWORK AUDIT SERVICES

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 onsite installed equipment i.e. Radio, Transmission, BSS and Civil works.

Network Audit includes:

- BSS Audit
- Transmission Audit
- RF Audit

BSS Audit	Transmission Audit	RF Audit

BSS Audit

- BOQ Verification
- Quality of Installation
  BOQ's will be required to verify all the equipment installed;
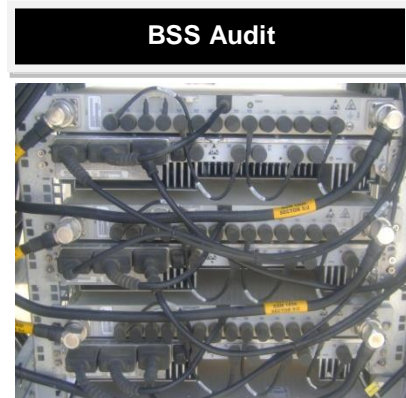- BTS Antenna and Feeder cable Installation
- BTS Visual Installation check
- BTS Cabinet Checks are Performed.
- Hardware and software alarms are checked
- Physical capacity of the site.
- The antenna height along with type, tilt etc
- RF coax cable connections, Cable return loss Sector orientations
- Testing of grounding field strength, percent service availability, base-to-mobile and mobile-to-base signal levels

Transmission Audit
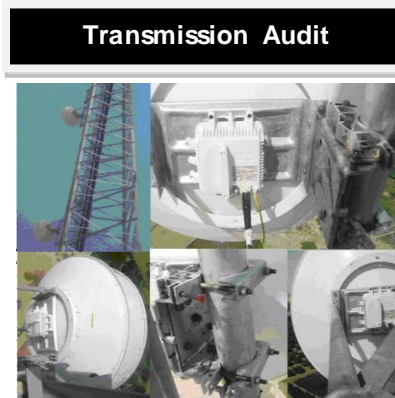
Audit includes inspection of Quality of Installation along with physical condition of tower and site.

- 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

- Perform Drive Test and analyze long 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
- Coverage Hole
- Overshooting cells

3.3 TELECOM MANAGED SERVICES

TSC Managed Services are;

Network O&M	Network Field Maintenance	
	PM & CM	Support Services

Network O&M

- Fault Management & Trouble Shooting Management
- Root Cause Analysis Support & Reporting
- Upgrade/Capacity Management
- Configuration Management
- KPI Measurement
- Backup management & Recovery support
- Database Management
- Remote Infrastructure Alarm Monitoring and resolution
- Onsite and remote Infrastructure monitoring
- Field Scheduling & Dispatch Management

PM & CM

Preventive & Corrective Maintenance of

- Core Network Elements (MSC,BSC,BTS) Transmission Systems
- Access Networks like WiMax, FTTH etc
- Fiber Networks
- Electrical Equipments& other Facilities

Support Services

Technical Support and Process Management:

- Technical Help Desk
- Acceptance Testing
- Type Approval Testing
- Process Management activities

Logistics & Vendor Management:

- Spares Management
- Warehouse Management
- Repair & Return coordination
- 3rd party Vendor Management

3.4 IN BUILDING SOLUTIONS

TSC can provide solutions for picocell and femtocell. We have experts in solving in-building coverage and capacity issues for mobile operators. We can supply technology and expertise to operators and have capacity to offer end-to-end turnkey solutions.

3.5 POST PROCESSING AND OPTIMIZATION SOFTWARE TOOLS

TSC can provide multivendor Network Optimization and Monitoring Platform, combines powerful tools empowering entire optimization process, it provides a robust and secure environment to maintain your site database with minimum engineering efforts.

TSC can also provide platform incorporating MULTIPLE DATA SOURCES displayed and analysed on a single dashboard, its feature include; Automatic Optimisation (for root cause analysis) and resolution analysis, Configuration Management, Geo-location, Visual network health, Management of multi-vendors and multi-technology.

4. GENERAL SERVICES

4.1 CONSULTANTS OUTSOURCING

TSC has developed a strong understanding and presence in our areas of expertise. Through our extensive professional network and partnerships with global and regional resume engines, we have access to the best and brightest people from the industry locally and internationally.

We understand that good staffing decisions are crucial for any organization's success. Therefore, our team takes time to understand your requirements to ensure we match the right candidate to the right job and eliminate the guesswork.

4.2 TRAINING

Professionals with deep understanding of telecommunication, information technology and high competence of helping businesses by properly managing projects and resources, developing right strategies and improving organizational capabilities are the most crucial and primary need of information-driven organizations. Progressive, dynamic and information-driven organizations have realized this fact and are investing more on human capital to reap maximum benefits.

TSC's executive training program is uniquely positioned to prepare such organizations and individuals with these strategic and tactical responsibilities and challenges. Our coaches and trainers help organizations and professionals to expand their purview to business and industry without abandoning core IT responsibilities.
Our focused training areas are:

- IT Management and Frameworks
- Telecommunication Networks
- Data Networks
- HR & Entrepreneurship
- Project Management
- Information Security Management.
- Performance Coaching
- Safety training
- Conflict Resolution
- Strategy Sessions for growth and more

5. VALUE ADDED SERVICES SOLUTION

5.1 TSC Virtual-PBX VAS

Our Virtual-PBX solution (VAS) for Mobile operator allows their Corporate Customers to choose the best virtual phone service and eliminate the need of PBX from their organizations. Customers will not be required to deploy any extra Hardware or software to use this services and they would just need to configure the service as per their requirement (like defining extensions, loading IVRs, enabling call recording to required extensions, etc) through user friendly web interface.

Following are some major advantages of our solution over traditional PBX that would be highly attractive for SME and SOHOs like Banks, Courier Companies, Restaurants, Doctors, School/Colleges, Companies with field Teams, Car Dealers/Service Centres, Call Centres, Real Estate Agents, etc:

- Built-in powerful Business Intelligence capability
- Provides mobility to field staff of cooperate customer and allows them to attend calls landed on corporate number.
- Call Recording feature helps in QA and also reducing unofficial calls
- Unlimited number of extensions

Any Telco Operator can white-label our product and provide it as a service to their corporate clients. By offering this service, Operator can expect new connections, increase in ARPU and also can keep check on Churn.

Our solution currently being used by multiple operators in Pakistan and implementation with other Operators outside Pakistan is in progress. We have an experienced development team that has customized each implementation as per customer requirement.

6. IT SERVICES

Telecom Services and Consultants (TSC) experienced teams provide dedicated Services, Solutions and support on various IT domains. We also offer verity of training courses related to IT Service Management framework, Project Management, Information Security & Management, etc. Our certified Network & Security resources support in IT Network implementation, administration and support services.

In addition to Application development and customization support, our Development team has developed wide verity of off-the-shelf solutions for different functional domains like College/University admission & Operations, Library Management, Operation support and Network Management Systems.

We have a state-of-the-art RNOC facility in our premises and have the capability to remotely monitor all IT and Telco Network elements from our NOC. Our RNOC solution is particularly attractive for corporate customer due to extreme cost effectiveness and fast deployment features.

6.1 NETWORK SOLUTIONS

6.1.1 ROUTING & SWITCHING

With skilled and certified engineers on our platform on packet switching technology, we help to radically change and optimize network by analyzing clients' needs, designing the right network and choosing the right technology that provides better ROI. Our solutions include basic level to more complex enterprise networking.

We have worked in varied industries and have provided scalable and robust solutions at both layer 2 and layer 3 levels. We do this by evaluating client requirements in the following areas to address undesirable performance degradation and unnecessary downtime:

- Traffic & Bandwidth
- Number of users and overall usage
- Security requirements and compliance
- Technology inclusive of Hardware and Applications

Tel-e-com works with industry leading OEMs to provide well-integrated, well-designed and well-managed core network solutions from industry leading technology vendors. Our relationship strengths with OEMs help us craft the right solution at the right price for our clients more efficiently with scalable performance.

6.1.2 NETWORK SECURITY

Network security is one of the most vital areas of concern for any organization. Enterprises are exposed to targeted attacks and security intrusions through more sophisticated, customized and targeted malware that goes undetected through firewalls.

Tel-e-com focuses on delivering specialized IT security solutions for its customers based on their needs and requirements from various technology platforms that Tel-e-com partners with. We work with clients to create a well-thought out Information Security Policy, backed by leading technology platforms in next generation firewalls as well as stand-alone security products such as Intrusion Prevention System, URL filtering and others.

Our technically qualified and experienced team plans, designs, implements, controls and optimizes network security for our customers by providing simplified, yet formidable, security environment in Firewall, UTM and Network Security through tight integration and increased end-to-end visibility.

Our solution includes:
- Next Generation Firewalls

- Intrusion Prevention
- Mail Security
- IPS/IDS
- Anti Virus
- Zero Day Protection
- URL Filter
- Spam Filter
- Anti Spy Ware
- Application Control

6.1.3 Wireless

Indoor Wireless Solutions

Tel-e-com keeps up the pace with the technology innovation and evolution happening in the IT industry. We remain aligned with our best of the breed technology vendors who support an innovative new class of wireless infrastructure equipment and offer multi-varied solutions to our clients.

We offer indoor and outdoor wireless solutions based on industry leading technology platforms for our clients. Our solutions are cost effective, easy-to-deploy, convenient and secured. Our wireless solutions also provide controlled guest access and bandwidth management solutions.

Outdoor Wireless Solutions

In outdoor solution, we specialize in deploying back-to-back solution to cover wide-ranging distance between client locations through our leading technology. We have experience of deploying outdoor solutions for clients in rugged environment, and provide post-sales maintenance support.

7. NETWORK SYSTEM INTEGRATION

We provide best-in-class solutions by integrating Industry standard network products of various well-known technology companies to provide the best products at an affordable cost to our clients. This allows our customers to execute their business processes more efficiently and effectively. We help customers integrate a variety of technologies and deploy those for delivering IT solutions that meet our customers' stated business and IT goals with scalable objectives.

8. College/University Specific Application

AcadMax

The college and university lifecycle is the focus of Acadmax Campus Solution. Acadmax will help you manage the entire student, teacher and employees lifecycle seamlessly - from recruiting of student to admission, through student services and alumni relationship - in a secure and stable environment. Acadmax Campus solution integrates and streamlines the infrastructure on which the student lifecycle depends; either you're a school, college or university. It helps you do more with less effort, maximizing your efficiency. And it uses scalable technology that can expand to meet your needs in the future.

AdMax

In today s competitive education environment, building strong relationships from the beginning of the search and application process is essential. Acadmax Admission services enable your Admissions office to keep a clear focus on identifying and recruiting the best candidates for your institution Acadmax Recruiting and Admissions module captures details on prospective students to help you better plan, manage, and track your admissions and recruiting activities.

LibMax

Now more than ever, libraries are facing the challenges of escalating user expectations, divers and rapidly expanding information universe, and the demand for increased operational efficiencies. To meet these challenges, libraries require an infrastructure that enables them to continue offering their services in a constantly evolving environment

9. Operations Support Products

9.1 SurvMax

SurvMax is a survey and form software that allows you to create and deploy easily without any technical knowledge web based surveys to gather important feedback from your customers, employees or website visitors. Once you've gathered all this information Feedback Server provides you with powerful online reporting tools to analyze the results in real time allowing you to define and set new strategies for your product line or enterprise, turning knowledge into money.

9.2 WorkMax

Office automation software solutions don't require a large budget anymore. Although lots of alternatives to major solutions are available on the Internet, finding the right tool for your needs might be a complex process. Compared to many other collaboration software, WorkMax provides a unique solution: a feature-rich web based project manager software that remains simple and easy to use but yet powerful enough to

address user requirements. Therefore, WorkMax can help you as much as a big league system would and perhaps, even better. WorkMax is easy to work with compared to many other PM tools, which are often overkill for most organizations. More importantly directors and employees should spend more time managing the project rather creating them. Our strong "Help" section as well as our free customer service contributes to shorten the learning curve. WorkMax has no "bells and whistles", it has what we feel project managers and their teammates need, period.

9.3 Unified Notification Management Systems

We provide Notification system for the intimation of alerts or events over Call, SMS and E-mail and allow for extending corporate data of wireless networks to mobile users of the enterprise. Notification system helps in increasing business productivity by delivering critical enterprise content to make timely decisions

10. Remote Network Operations Center

Remote Network Operations Center (RNOC) will provide a working facility for 24x7 proactive monitoring and management of client network infrastructure and systems

Provide Real time monitoring of network alarms/events and statistics and can be define correlations and schemes in alarms/events or define customized synthetic alarms. and provide customizable dashboard views for system performance management. Build customized workflows for Alarms/Events. and have the features of Network's business View and live status of each Network Element (NE) on Google maps
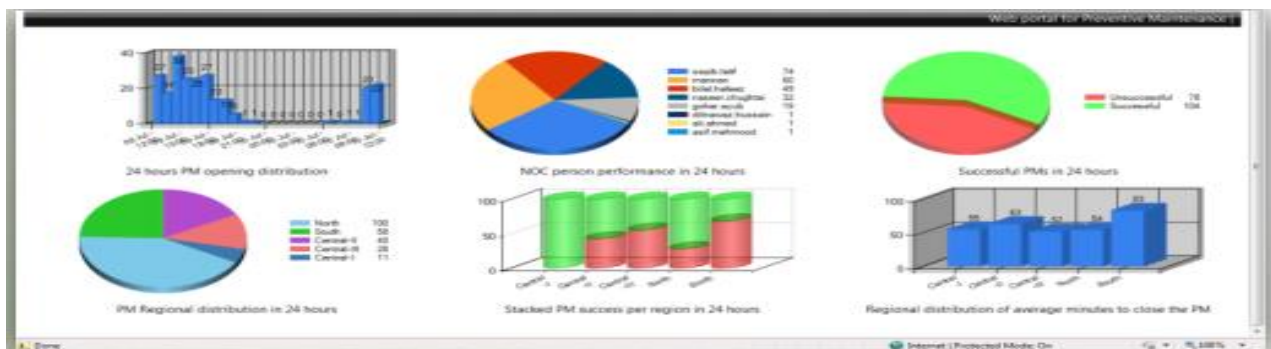
RNOC-Performance Management Module
DashBoard:
RNOC provide the features of Real Time Monitoring of Network Alarms/Events and can measure KPIs of different network elements over time and RNOC generates Alerts on KPI Thresholds

Reporter:
RNOC Maintains all the KPI data in a centralized database and RNOC can customized Reports and graphical Information to Improve Business Services. IN RNOC data can be extracted on real time or scheduled.

11. CLIENTS

HUAWEI

ufone

ptcl

Nokia Siemens Networks

Universal Service Fund
Telecom for all

telenor

Alcatel·Lucent

KUFPEC

warid

MTN

MOTOROLA

ROSHAN connection
روشن
Nazdik Shodan نزدیک شدن

12. INTERNATIONAL BUSINESS PARTNERS

Aviat NETWORKS

HAF CONSULTING

ACTEL Communication (Pvt) Ltd.
Subsidiary of Actel Communication, Egypt

TELE SPARK

13. LOCAL BUSINESS PARTNERS

Cellkom	(Telecom Field services)
Teleserv	(Telecom site Civil Works)
360 Cellution	(RF Optimization Solution)
Max-Intelligence	(IT Services)
Hadi Telecom	(IT Services)
Business Analytics	(IT Services)
DPS Kuwait	(IT Managed Services, Business Intelligence Solutions & Billing)
Exceleron Comm	(IT Services and Solutions and 2G/3G/LTE Network Services)
Prime Telecom	(Network Integration)

14. CONTACT INFORMATION

Find out how TSC can helps companies become wireless leaders and how TSC resources can be put to work for your company. Simply call +92-51-210-7500 or send an inquiry to tsc@tel-e-com.com.

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