monenco

Information & Communication Technology Department
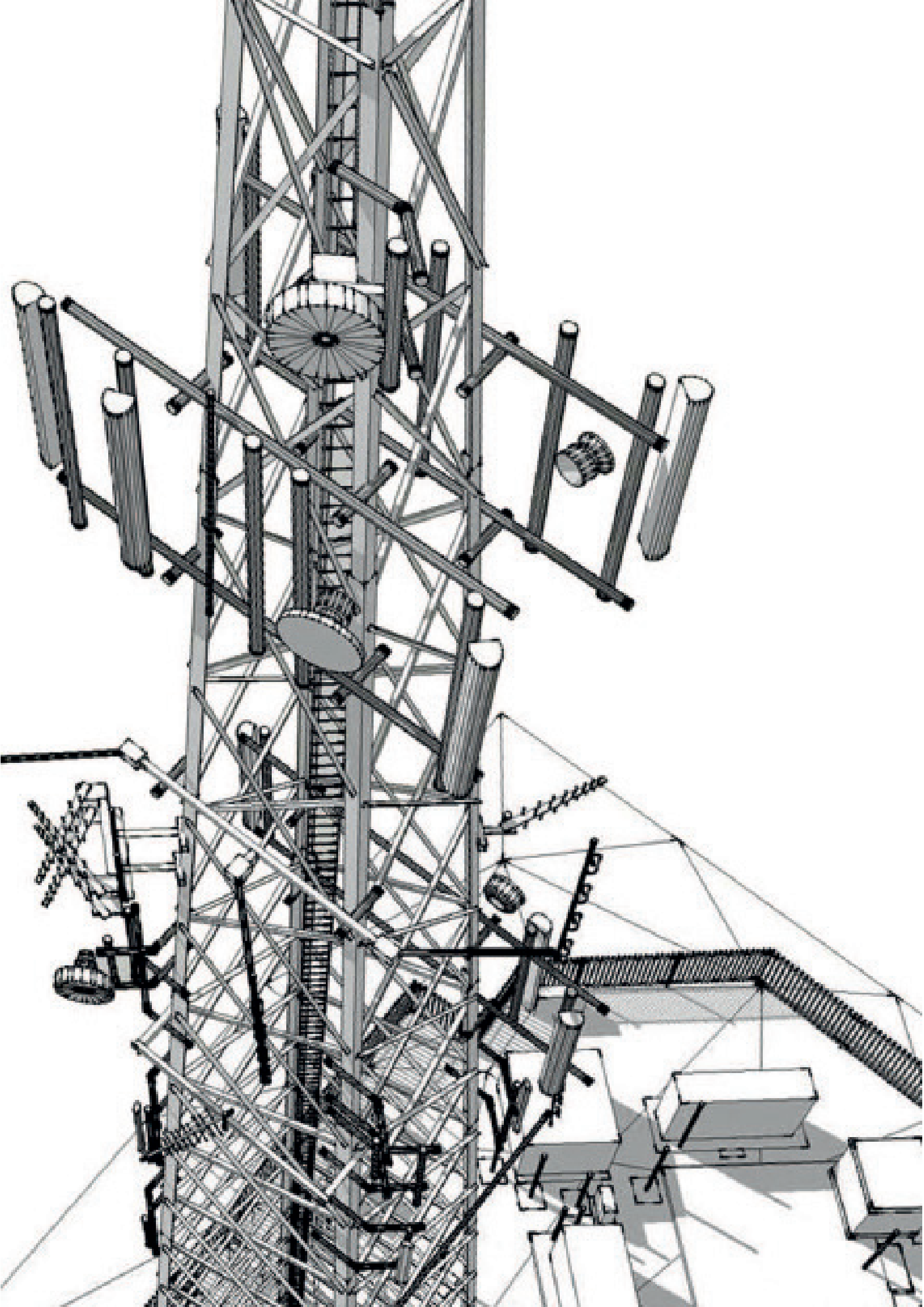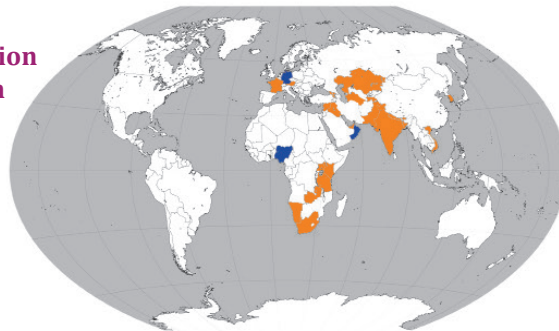
Table of Contents

Monenco Iran at a Glance

Target markets

Telcommunication
Smart **S**olutions
Transmission Lines & **D**istribution
Dispatching
Power **G**eneration
Automation
Geology & **M**ining
Electrical **R**ailways
Oil & **G**as

50
**years experience**
1000
Employees
200
Clients

Monenco Registered Companies Internationally
Monenco International Presence

Process
Mechanic
Computer
Civil
Electric
Telecommunication
Industry

Engineering & Consultancy Services

› Feasibility Studies (technical, economic, environmental and social)
› Strategy & Business Planning
› Master Plan Development
› Conceptual, Basic & Detailed Design
› Design Review and Endorsement
› Tender & Material Requisition Preparation & Bid Evaluation
› Construction, Maintenance and Operation Supervision
› Factory & Site Acceptance Test Supervision
› Energy System & Integrated Network Studies
› Technical Training Courses and Knowledge Transfer

| Feasibility Study | Strategy & Business Plan | Engineering & Consultancy | Supervision |
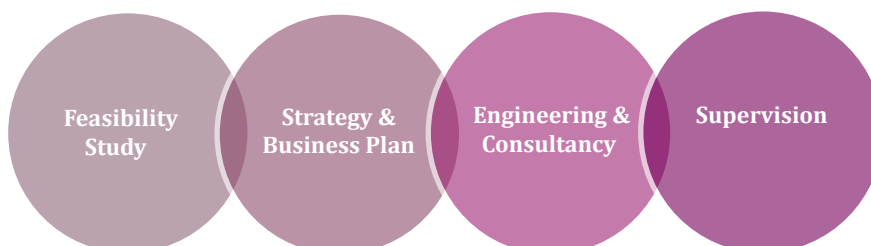
ICT & Smart Solutions Director

Siamak Hossein Khalaj
khalaj.siamak@monencogroup.com

The fourth industrial revolution (Industry 4.0) and emerging application of industrial internet of things (IoT) is the direction of the alterations in the environment of today's industrial world. The major new software applications in wireless sensors, distributed peer to peer networks and telecommunications as a larger complex adaptive system, have the essential role in this revolution.

Nowadays, real time data generation, the utilization of big data and data mining solutions and the correct application of the technologies create added value through improving the efficiency and decreasing the related expenses. ICT, SCADA and Automation Division was formed in 1994. So far after two decades, we proudly provide A-Z engineering and consultancy solutions to a wide range of industries such as telecommunication, oil and gas, water and wastewater, ports, steel as well as power and transportation.

Our extensive knowledge within a wide range of industries and expertise teams empowers us as a consultancy and engineering firm to provide ICT, dispatching and end smart solutions for our customers. Hence, our competitive advantage is our know-how in interconnected disciplines namely telecommunication, SCADA and automation accompanied with our experience in different industries and awareness about their challenges.

In this brochure the ICT Department capabilities, proficiencies, structure and the selected references are introduced.

SCADA Department

› SCADA Centers
› Distribution Automation
› Data Aquisition
› Signaling
› SCADA Security
› Asset Management

Smart Solutions and Automation Department

› Smart Grid
› Smart Metering Infrastructure (AMI)
› Smart Cities
› Industry 4.0
› eHealth
› Interoperability

ICT Department

› Telecommunication Fixed Networks (Fiber optic, ...)
› Telecommunication Wireless Networks (Radio, Wi-Fi , Microwave, Cellular, ...)
› IT Systems (Big Data, Data Center, Data Model, ...)
› ICT Strategy (Corporate and Enterprise)
› ICT Business Study (Market Study, Setup Business Model and Developing Financial Model)
› Regulatory

ICT Department

ICT Department Manager: Dawood Nadi
Nadi.Dawood@monencogroup.com

The ICT Department has an extensive presence in different industries namely Power, Transportation, Oil & Gas, Steel, Port, etc.

In spite of low Capex in telecom sector in comparison to other sectors in industrial mega projects, the added value made by telecom sector in terms of improving the efficiency and reducing the operating costs, is extremely noticeable. In this case the role of a consulting engineering firm in accomplishing telecommunication master plans and the application of the technologies like IoT and Big Data is remarkable.

Telecom industry can be considered as a volcanic eruption that in the nearest future will disrupt almost all industries in the world by the means of innovation.

Mobile devices and having access to broadband networks is becoming an inseparable part of today's societies that can be affected by Video Streaming and Internet of things (IoT). The number of connected things and smart devices are intensively increasing and this growing trend is promising for telecommunication firms in terms of untapped markets and greater market opportunities.

For the telecom operators, PAPs, ISPs and other B2C companies, business strategy and a strong business model accounts as an undeniable necessity in this competitive and volatile market.

Also, the rapidly growing industry and its diversified actors such as MVNOs, OTTs, broadband operators, IoT and M2M providers and other regulatory organizations in each country would be requiring a robust policy and regulation.

Telecom infrastructure companies in order to expand their network and increase their efficiency should get involved in technologies like Software defined network and Network function virtualization. In implementing these new systems they are facing fast changes in technology and equipment which requires the best options and solutions.

Telecommunication Department of Monenco Iran is equipped with experts who are leading in the fields of IoT, Smart solutions, Network design, mobile & fixed broadband supported by R&D team together with specialists in providing regulation, frame works, strategy and business models. Considering our professional team, Telecommunication Department of Monenco Iran is able to play the role of a high-level consultancy company to fulfill industries' needs.

| Power | Oil & Gas | Water & Wastewater | IT & Telecom | Transportation | Steel & copper | Port |
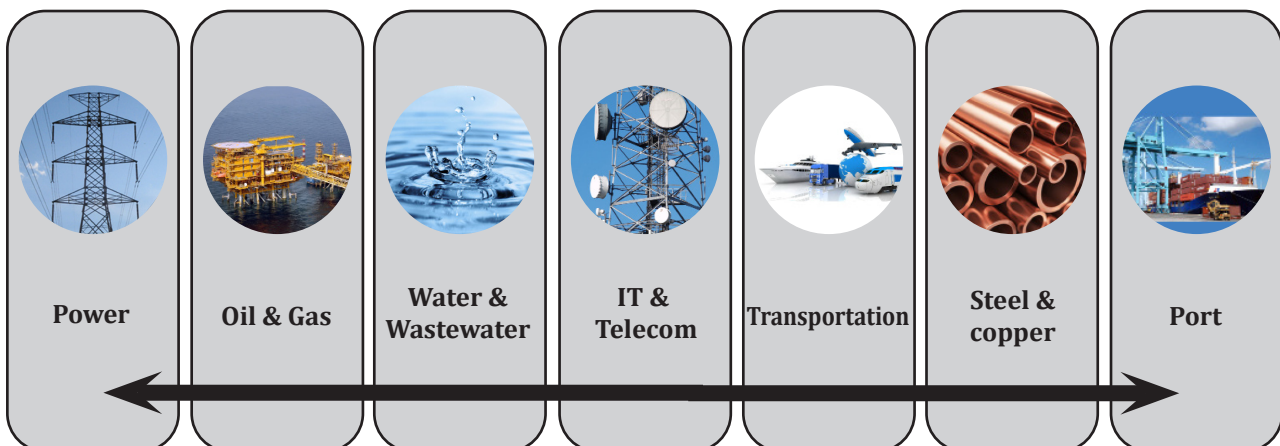
Field of Expertis

Fixed Telecommunication Networks

Monenco Iran has special experiences in both active and passive optical systems as below:

Active Fiber Optic

1. Transmission Technology:
   › MSTP/PTN
   › CWDM/DWDM
   › OTN/POTN
   › IP Router & switching

   Each of the aforementioned technologies has its own property and specification.

2. Access Technology:
   Access network technology is based on FTTx. FTTx stands for Fiber To The x, where x may be located in Home/Building or Cabinet.

Sample Projects:
› Development of integrated telecommunication plan (Fiber Optic Transmission System)-Iran Railway Co.
› Consultancy services for national main and backup dispatching centers (telecommunication system including fiber optic network)-IGMC
› Consulting, engineering and supervision services for Optical Telecom Transmission Network-IRAN Power Development Company (IPDC)
› IGAT7P2 Gas Transmission Pipe Line Telecom Engineering and Detail Design Services-Iran Gas Engineering and Development Co.
› Engineering services of study plan for fiber optic network-Tehran Regional Electric Co.

Passive Fiber Optic

1. Fiber optic Core and Cable/installation and required consideration based on ITU-T standard; In the first segment, all standard related to the ITU-T G. series as listed below are suitable for bend insensitive solutions;
   › G.652
   › G.653
   › G.654
   › G.655
   › G.657

   On the other hand, Fiber optic cables as losted below are categorized in this section;
   › OPGW
   › OBUC
   › OBFC
   › ADSS

2. Passive accessories and test Methodology/procedure; Test equipment and its methodology includes;
   › power meter test equipment
   › OTDR with different modules to carry out PMD and CD test on fiber optic Core
   › OSA test on DWDM network

Sample Projects:
   › Consultation services for national broadband project based on FFTx-Iranian Net Company
   › Fiber optic infrastructure network design for Iran roads' ITS projects-Mapna Groups
   › Kowsar touristic complex FTTx network design (OLT equipment)-Kowsar Complex
   › Development of integrated telecommunication plan (Fiber Optic infrastructure)-Iran Railway Co.
   › Design of 1001 cities complex's fiber optic infrastructure-Korit ezam company
   › Supervision of installation & commissioning & maintenance of telecom operation (fiber optic infrastructure segment)-Tehran Traffic Control Company

Unified Communication Systems (UCS)

Today's agile organizations are going to have unified communication systems for their voice, video, and data communication, including the latest advances in mobile communications and social media. Today's UCS includes following items:

   › Infrastructure
   › Applications and Services
   › User Experience

Monenco Iran provides consultancy to their clients for selection and deployment of the above elements as follows:

Infrastructure

   › Connectivity
   › Reliability
   › Resiliency
   › QoS
   › Security
   › Mobility
   › Management
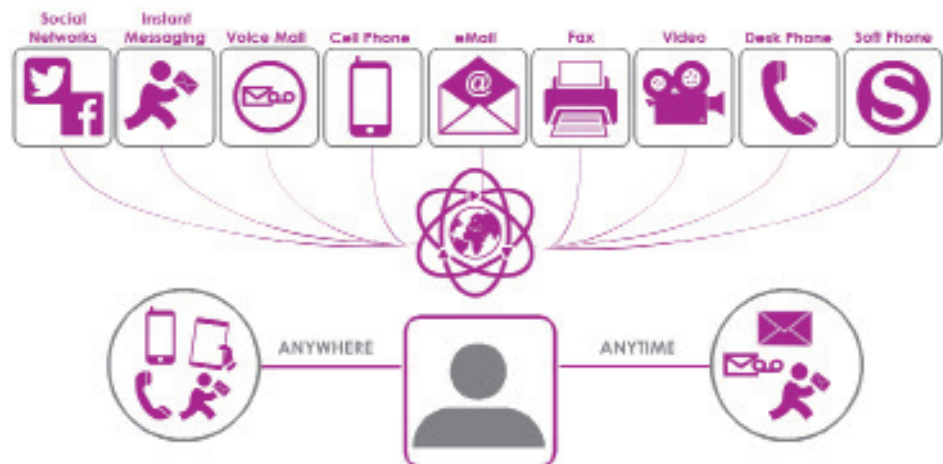
Applications and Services

- › Instant messaging (IM) and presence
- › Rich media conferencing
- › Tele-presence
- › Voice messaging
- › Customer contact
- › Call recording and monitoring

User Experience

- › Wide variety of endpoints
- › BYOD, Bring Your Own Device, smart solutions
- › Mobile communication
- › Development of your own applications and services

Sample Projects:

- › VOIP and BOYD services for Kowsar touristic complex (FTTx network design)
- › Comprehensive and final studies of PABx/VOIP and unified communication network- Sistan & Balochestan Regional Electric Co.
- › Engineering services for master plan of PABx/VOIPand unified communication network- Azarbayjan Regional Electric Co.
- › Design of VOIP/PABX and unified communication system for 1001 cities complex's-Korit ezam company

Power Line Carrier Systems (PLC)

PLC systems have been used for decades by power utilities for transmission control command-voice-data for the operation and protection of the power grid. Particularly, PLC systems are used where installation of optical fibers are not economically justified or as a backup solution. Monenco Engineers with over 10 years of experience in PLC network design, provide a wide range of consultancy for their clients, including:

- › Traffic engineering
- › PLC channel layout
- › Frequency allocation plan
- › Equipment quantity (LOM) and required CAPEX/OPEX assessment and execution phasing
- › Tender documents and evaluation including reqired services
- › Supervision on material supply
- › Supervision on installation, tests and commissioning of equipment

Sample Projects:

- › Supervision of Installation and Commissioning of A.B.B. CO. (SWISS) PLC Network of Azerbaijan Regional Electric Co. (AREC)
- › Engineering Services of PLC and Tele Protection Systems Optimizing of Esfahan regional electric Co.
- › System Study of Communication Network of Khuzestan Water & Power Authorization (KWPA)

Wireless Telecommunication Systems

Cellular Radio Network

Cellular radio networks are divided into two parts:

Professional Mobile Radio (PMR): PMR was developed for mission critical users who need to keep a reliable connection with each other or with the central base station including following technologies

> › DMR
> › TETRA
> › P25

Public Access Mobile Radio (PAMR): PMAR was developed for general commercial users whose connection is not too critical such as:

> › GSM-R
> › 2G, 3G, 4G, 5G

Monenco Iran offers following services in cellular radio networks;

> › Technology selection according to client needs
> › Link budget calculation
> › Coverage Assessment
> › Traffic engineering
> › Network dimension determination
> › Optimization
> › Frequency planning
> › Interference design
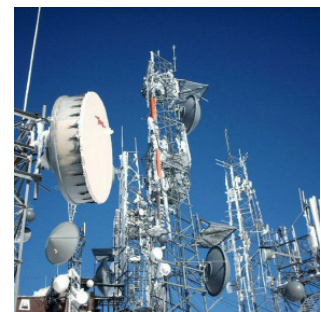
Sample Projects:

> › Design of GSM-R technology for part of Iran rail way company (Tehran-Esfahan)
> › Design of DMR-3 technology for part of Iran rail way company
> › Design of telecommunication system for immunization and controlling of gas network of Tehran gas province company (TETRA cellular radio network)
> › Design of TETRA technology network for Imam international airport
> › Design of telecommunication system for Khouzestan regional electric company (MPT cellular radio network)

Microwave Radio Network

Microwave radio networks used for transmission of information between vital points or creation of backhaul infrastructure for cellular networks. Monenco Iran has special experience in microwave network planning as mentioned below:

› Link Budget Calculation
› Link calculation
› Antenna Selection
› Frequency planning

Sample Projects:

› Design of microwave network for National Iranian Gas Transmission Company in west of Iran
› Engineering Services for KAHAK wind power plant-telecommunication section
› Design of microwave for radio trunk backhaul network for Tehran gas province company
› Design of microwave network for 6th section of Iran gas transmission pipeline radio network

WiFi Network

Wi-Fi networks are able to provide the coverage and mobility required in industrial environments cost-effectively in contrast of expensive radio trunk or cellular solutions.
Monenco engineers plan Wi-Fi networks with locating access points and selecting suitable antennas. We also survey target site with the most advanced tools to find radio interference before deployment. In addition design of wired or wireless backbone of access points and deployment of security, captive portals, and AAA facilities are carried out alongside above activities.

Sample Projects:

› Last mile design based on WiFi for national broadband project (FFTx)-Iranian Net Company
› VOIP and internet services for Kowsar touristic complex (WiFi network design)
› Out door WiFi design in station for an integrated telecommunication plan-Iran Railway Co.
› Design of 1001 cities complex's WiFi network-Korit ezam company

Smart Infrastructure, Internet of Things (IoT) & M2M

Internet of Things (IoT) is an emerging technology which consulting services will help enterprise and industrial market leaders to remain competitive by implementing IoT technologies in their businesses. We offer the following services to help enterprises and industries to get the most out of making their device, assets and equipment connected:

› Low Power and Wide Area (LPWA) network planning
› Wireless Sensor Network (WSN) deployment planning for automation, monitoring and control
› M2M connectivity solutions
› Strategy development for the Internet of Things applications
› Service design for Internet of Things solutions
› Data and analytic advisory for the Internet of Things applications

Sample Projects:

› Designing a wireless sensor network for smart irrigation of Kowsar Smart City
› Feasibility survey for utilizing LPWA networks in Advanced Metering Infrastructure
› Publishing a technical report on "Introduction to the Internet of Things and its applications for enterprise and industries"

Telecom Strategy and Business Study

Monenco engineers in telecommunication department alongside technical activities provide market study and prepare master strategy and road map for the clients. Market study is useful when defining requirement, preparing budgets, choosing planning and procurement methods and so on. In order to cover these requirements we do following activities:

› Feasibility Study
› Market Analysis

› Strategy & Road map Planning
› Business Modeling

Sample Projects:

› Business plan preparation of fiber optic infrastructure deployment in the vicinity of Iran roads (Transmission network design, Technical specification, LOM preparation)-Mapna Groups
› Consulting services for national main and backup dispatching centers (telecommunication Market Trend analyze)-IGMC
› Consultation services for national broadband project based on FFTx (business plan and market strategy)- Iranian Net Company
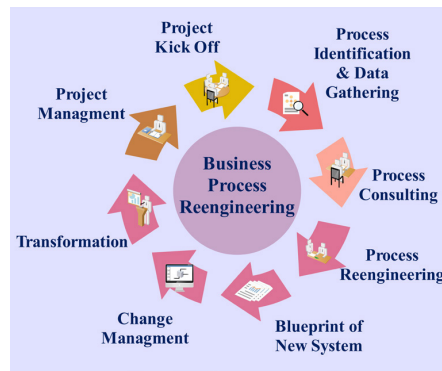
IT Services

IT Strategic Management and Studies:

Information Technology, as a fundamental, comprehensive and enabler technology, transforms businesses and makes smart organizations. IT alignment with business goals which leads to resource productivity and efficiency enhancement needs a strategic approach.

- › Developing IT policies and directions
- › Assessment of IT applications in different domains(environment, economy, industry, ...)
- › Future study and research in IT fields(visions, trends, scenarios)
- › Benchmarking, case study and introducing best practices
- › IT master plan development
- › Studying and designing IT center of excellences
- › Developing and localizing IT standards
- › Developing smart roadmap for organizations

Business Process Modeling and Reengineering:

Process-oriented approach to organizations makes them more customer-focused and needs continuous process improvement and reengineering.

- › Process modeling with BPMN 2.0
- › Process performance evaluation
- › Business process improvement and integration
- › Consulting and supervising process implementation by BPMS

Big Data and Data-driven Services:

Data is the crucial part of every business and big data analysis adds value to organizations and improves management decision-making and performance.

- › Developing business models for data-driven services
- › Valuation of business data
- › Data analytics and data mining
- › Consulting for enterprise data warehouse (EDW)
- › Data regulatory studies
- › Data privacy and protection studies
- › Data-based services training courses
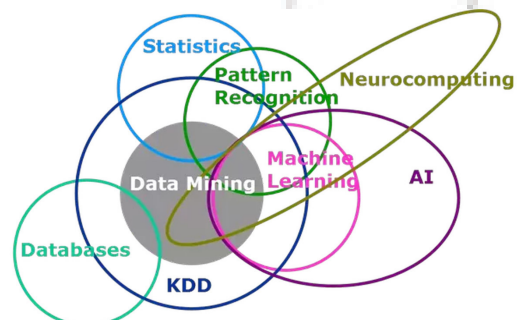
e-Government Services:

Governments try to deliver electronic services to citizens and integrate silo data and systems.

› Developing service catalog
› Designing required processes to deliver electronic services
› Developing government service bus (GSB)
› Designing enterprise service bus (ESB) and Information exchange (IX) centers
› Making services and processes smart
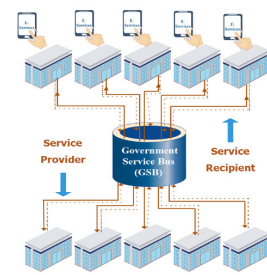
Enterprise IT Architecture:

Enterprise Architecture (EA) is an integrated approach for designing and aligning business processes with data flow and information systems.

› Developing enterprise IT architecture
› Assessment of As-Is architecture
› Defining To-Be architecture
› Developing transition plan through gap analysis
› Consulting and supervising of EA implementation
› Consulting on implementation of security requirements
› EA training courses
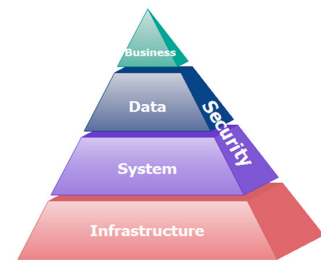
IT Governance:

IT governance (ITG) ensures business and IT alignment, processes improvement and resource performance. Global best practices encapsulated in COBIT framework for organizations and CIOs.

› IT governance assessment
› Assessment and designing IT organization and processes
› Developing IT governance development roadmap
› Supervising on COBIT implementation
› ITG and COBIT training courses
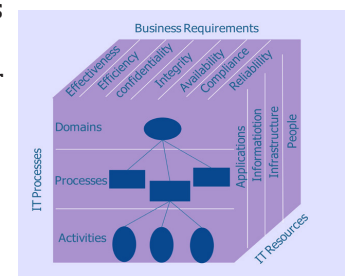
IT Service Management:

Nowadays, IT services are essential part of all businesses. Best practices around the world in ITSM gathered in ITIL model and ISO 20000 standards.

› IT Service management assessment
› Assessment and designing ITSM organization and processes
› Developing ITSM development roadmap
› Supervising on ITIL implementation
› ITSM and ITIL training courses
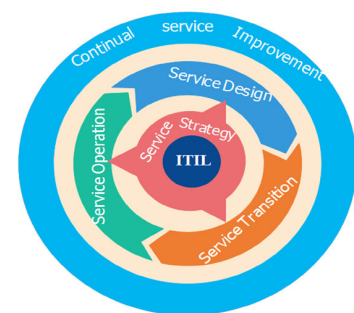
IT Business Development:

IT development and investment needs appropriate business model, feasibility study, and business plan for executives.

› Assessment and designing business model
› Feasibility study for IT projects
› Assessment and developing business plan
› Financial study for investments on IT-based ideas
› Designing IT project management system
› Supervising IT projects

Business Intelligence:

Business intelligence is a way to process and analysis of data to improve decision-making process and finding opportunities.

› Assessment of BI maturity in organizations
› Designing BI development roadmap
› Consultancy and planning organizational and technical BI requirements
› Consultancy data management and integration
› Developing RFP for BI implementation
› Consultancy and supervising BI projects
› BI training Courses

Cloud Computing:

Cloud computing is a global trend for persons and businesses around the world for data storage and processing for data sharing, flexibility, scalability, and cost reduction.

› Economic and technical assessment of organization readiness
› Developing cloud computing roadmap
› Knowledge management in cloud computing environment
› Supervising cloud computing solutions
› Assessment and developing cloud computing regulatory
› Cloud computing courses

Data Center:

Designing a data center involves careful planning and consideration of various factors to ensure efficiency, reliability, and scalability. Monenco engineers play a crucial role in guiding organizations through this process. Here are key aspects of data center design and the services we can perform:

› Capacity Planning
› Space and layout design
› Power and cooling systems
› Redundancy and High availability
› Security design
› Network infrastructure
› Compliance and regulation
› Technology selection
› Environmental sustainability
› Infrastructure audit according to TIA-942 and BICSI002 standards
› Technical specification of required equipment

By offering these services, we help organizations create efficient, secure, and scalable data center environments that meet their specific needs and industry standards

Digital Transformation

Digital transformation is the process in which organizations implement technologies throughout their business to bring about fundamental change. In fact, digital transformation can be defined as the process of using digital technologies to create or improve business processes, cultures and customer experiences in order to estimate the changing needs of the market. Digital transformation is the use of changes in culture, structure and use of technology in a company, organization or industry with the aim of improving processes, increasing productivity and reducing costs.

Monenco are capable to do the following services:

› Determining the model of maturity and preparation of the company, organization or industry to implement the digital transformation
› Identifying the needs and challenges of the company, organization or industry
› Providing appropriate methods for using technology in addressing identified needs and challenges
› Reviewing and providing advice on the roadmap for digital transformation
› Developing interactions with emerging companies in the implementation of digital transformation projects

Digital Economy

The digital economy refers to an economy that is based on digital technologies, including the use of digital platforms, data, and connectivity to conduct business, create value, and drive economic growth. It encompasses a wide range of activities, from e-commerce and digital services to the integration of digital technologies across various industries. We can offer a range of services and activities to help organizations make the most of the opportunities and challenges associated with the digital economy. some of these activities are mentioned below:

› Digital transformation strategy
› Improving commerce through new technologies
› Data analysis
› Cybersecurity and data protection
› Cloud computing
› Regulatory compliance in the digital space

Regulation

Regulation

Telecommunication regulatory refers to the set of rules, policies, and regulations established by government agencies or regulatory bodies to oversee and govern the telecommunications industry hence the role of consultant is critical in telecommunication industry that is subject to rapid technological advancements and evolving regulatory landscapes. By staying informed about regulatory changes, advocating for favorable policies, and ensuring compliance, Monenco engineers contribute to the success and sustainability of telecommunications businesses. We provide specialized services to telecommunications companies, government agencies, and other stakeholders. Here are some key activities that Monenco can perform:

› Regulatory Compliance
› Licensing and spectrum management
› Tariff setting and pricing strategies
› Quality of service compliance
› Risk Management

Strategy & Business Model

Strategy & Business Model:

A good strategy is a high-level plan to achieve goals under conditions of uncertainty. It involves making choices about where to allocate resources, what actions to take, and how to respond to changes in the external environment. In Monenco we provide Strategy as a roadmap for organizations to achieve their long-term objectives and gain a competitive advantage. In this regard we can provide following services:.

- › Market analysis
- › SWOT analysis
- › Risk assessment
- › Competitors evaluation
- › Developing business strategy
- › Commercial strategy and plan
- › Technology strategy and plan
- › Financial strategy and plan

Cyber Security

Cyber security:

Cyber security is a critical issue related to the protection of systems, data, and information against various attacks and threats. Using strong encryption, updating software, and being aware of attack techniques help protect individuals and organizations from exposure to online risks.

The following services can be provided by the specialists of the ICT group of Monenco Iran.

- › Evaluation and analysis of system and network vulnerabilities.
- › Providing risk reports with security recommendations.
- › Providing advice on the design and implementation of security policies and standards.
- › Preparing the document to provide the architecture of the industrial network and control systems
- › Conducting courses, awareness services and security training for employees.
- › Understanding and completing operational processes and creating security awareness processes in the organization.
- › OT-CSMS cyber security executive consultations
- › Implementation of monitoring and defense systems.
- › Monitoring the occurrence of security incidents and responding appropriately to them.
- › Penetration test
- › Assessing the current status of cyber security performance and presenting cyber management plans

Selected Projects

Consultancy Services for Feasibility Study and Preparing RFP for Data and Services Exchange Platform of Tavanir and Subsidiary

Project Explanation

In this project, Monenco Iran set many survey teams to gather all needed information to feed market strategy and business plan as well as input data for network design of network. The scope of work is listed below:

› Initial Planning, Studying and Evaluating the National Environment and Bench Marking
› Gathering and Analyzing Platform Requirements
› Determining the Framework and General Considerations of Data and Services Exchange Platform of Tavanir and Subsidiary Architecture and Governance
› Identifying and Reviewing Vendors and Relevant Products for Selected Platform (Market Study)
› Feasibility Study of Providing a Selected Data and Services Exchange Platform of Tavanir and Subsidiary
› Preparing RFP for Data and Services Exchange Platform of Tavanir and Subsidiary Procurement

Customer Value Proposition (CVP)

› Benefiting from specialize technical team in the field of Enterprise Service Bus platform and also professional project management team
› Having acceptable knowledge about operational structure and process of Tavanir org. and Subsidiary

Client

Tavanir Company

Monenco Role

› Project recognition report
› Providing Consultancy services in terms of preparing required deliverables of the project based on benchmarking, market study and feasibility study
› Selecting proper platform which have the most compatibility to the Tavanir org. and Subsidiary environment
› Preparing RFP including technical specifications
› Preparing qualitative and technical assessment documents

Knowledge @ Monenco

Integration platforms, ESB infrastructures and architectures basic design, international and domestic market benchmark, technical scenario comparison, e-government rules and regulations

Public Private Partnership Consultancy Services for ''Upgrading Intercity & International Voice Switching Network''

Project Explanation

Iran telecommunication infrastructure company (TIC) has a valuable position in the country's telecommunication field due to its presence and governance in the communication path of domestic operators and also as a gateway to international telecommunication networks. Consultancy services for upgrading intercity & international switching network has been defined with the aim of updating and improving the voice communication network between operators and also the International communication. TIC decided to do this joint with a private company as the first ICT sector PPP project.

Customer Value Proposition (CVP)

› Technical, financial and legal requirement
› Business model preparation
› Report of the decision to transfer, due to Iran Plan and Budget Organization rule
› Stable communication
› Switching network development
› Reducing OPEX due to replacing the old systems with the new one
› Technical specification of equipment
› PPP contract

Client

Iran Telecommunication Infrastructure Company (TIC)

Monenco Role

› Project recognition report
› Solutions for reconstruction of network based on the best technology
› National IN network development design
› Preparing RFP including technical specifications
› Preparation of qualitative and technical assessment documents
› Scheduling of project implementation
› Preparing a plan of contractor assessment
› Estimating the project cost
› Report of the decision to transfer
› PPP contract preparation

Knowledge @ Monenco

PPP Rules and legal requirement, Financial Requirement, technical requirement such as Recognition of TCI network, Next Generation Network (NGN), IP Multimedia Subsystem (IMS), IP Exchange (IPX) and Routing & Policy Server (RPS).
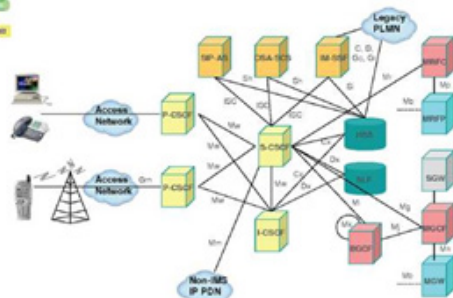
Study of Drafting ICT Governance document for Tehran Municipality

Project Explanation

One of the most important signs of the maturity of information technology in organizations is the existence of appropriate technical and infrastructure facilities such as network, hardware, software, etc. to provide appropriate services and their optimal performance. In this regard, every organization needs to use the models and frameworks related to IT governance in order to realize the principle of alignment, to provide a suitable structure for that organization. A structure in which the assurance of supporting business goals with ICT investments, the trust and responsible spending of ICT resources and the appropriate management of ICT risks are done

Customer Value Proposition (CVP)

This project intends to compile the ICT governance document of Tehran Municipality:

› Methodology and guidance
› The structural system of ICT management and processes
› Provide and strengthen the goals and ICT strategies of Tehran Municipality

Client

Tehran Urban Research & Planning Center

Monenco Role

Monenco Iran Co, acts as a consultant for Tehran Municipality Studies and Planning Center, intends to take the measures mentioned in the service description in order to provide a standard and well design ICT structure which response the majority of ICT requirements of Tehran municipality in government organizations and agencies.

› ICT Benchmark
› Comparative Study of ICT Governance
› Current Status Analysis of ICT Systems
› ICT Gap Analysis
› ICT Road Map
› Drafting an Action Plan

Knowledge @ Monenco
› ICT Governance / E-Government
› ICT Services Management
› Definition Framework and Planning ICT Governance
› ICT Governance Tools & Components & Objectives

Mega Project of the First Iranian FTTx Broadband Operator

Project Explanation

This project was performed in 4 major step as below:

A) Geographical Data Gathering Project

Monenco Iran set many survey teams to gather all needed information to feed market strategy and business plan as well as input data for network design of network.

B) Feasibility Study and Market strategy Project

Monenco Iran did benchmarking the fix broadband market trend in other countries, Based on depth study about internal market and international approach, SWOT analysis was done with considering the regulatory license. For market strategy we did customers prioritization, market segmentation, service definition and selecting high potential area as Region of Interest (ROI) for network deployment. Benchmarking (Technology, KPI, Roll out method, penetration rate, etc.)

C) FTTx network design Project

In this project, gathered data including: Shape map, street centerline, residential and businesses information, Headquarters and mobile network elements considered as input for network software designer. three high score scenarios based on different design assumption was simulated, finally the best one was selected as final alternative. It is noticeable that all design was done with high precision international level software and the result was so fine to make decision about network roll out. Capex of network is calculated based on scenario and cost breakdown (Feeder layer, Distribution Layer, Drop Layer) was generated automatically based on software to eliminate extra costs in each segment of network.

D) Business Plan and Financial Analysis Project

In this project, business plan based on different roll out scenario and network architecture was done. The main inputs to preparation of business plan are: Revenue profile and cost profile. To prepare revenue profile all customers and corresponding AROU should be entered with respect to type of services. Cost profile consists of total network Capex breakdown based on customers. After completing cost and revenue profile, the business plan should be finalized based on scenario. With analyzing of business plan output, client can decide how and when to deploy the network.

Customer Value Proposition (CVP)
› Comprehensive Geo marketing database (SoHo, SME, HQ)
› Enhanced market point of view about good technical design based on real data
› Comprehensive Geo marketing based on different KPIs
› Capability of network rolling out based on high potential area study
› Reliable investment due to ROI selection
› Reduced the network Capex based on good approach selection in roll out method
› Best optimum Roll Out network plan via software result.
› Capex reduction base on optimized design via software.
› Technical specification complies with network requirement (Passive and Active equipment)
› Investment profile and Cash flow analysis
› Financial parameter such as: ROI, IRR, NPV, TCO,

Client

Iranian Net Company (the 4th Iranian telecommunication operator and the first fix broadband based on FTTx)

Monenco Role

› Set up interview with telecom main role player
› Internal and International fix broadband network benchmarking
› Market survey
› Competitor analysis
› Market strategy development
› Design Rule generation.
› Network Protection method
› Core layer design (active equipment and network architecture)
› Metro layer design (pop site connection and network architecture)
› ODN (optical distribution network) planning
› FTTx Network Design
› Cost and revenue profile determination
› Financial parameter extraction
› Sensitivity analysis
› Business model definition
› Business plan preparation

Knowledge @ Monenco

Telecom market study, regulatory frame work, KPIs definition, service price list, geo market information, broad band technology selection, customer classification, ARPU determination, SWOT analysis, Gap analysis, International Market benchmark, FTTH Council Trends. FTTx network design, FTTx networksoftware simulator, cost benefit analysis, technical scenario comparison, Network Capex , Business Plan, Financial analysis, Sensitivity analysis, Cost Benefit analysis.
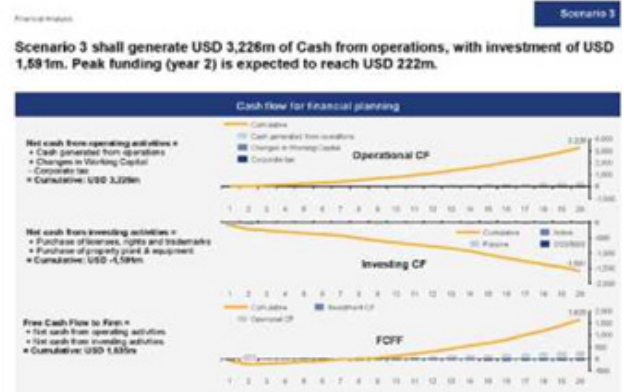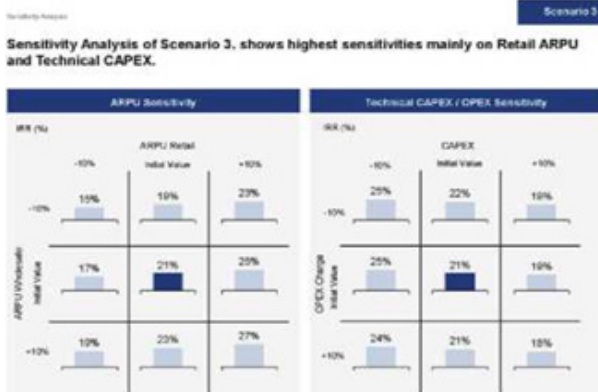
Consultancy Services for Control and Monitoring Navigable Waterways

Project Explanation

The main aim of this project is monitoring the vessel traffic in Iran's navigable waterways for vessel traffic services (VTS), maritime rescue coordination centers (MRCC), and maritime pollution response system, inclusive:

› Studying the existing aid to navigation systems such as VTS and automatic identification system (AIS)

› Benchmarking two foreign port case studies

› Upgrading the existing VTS and AIS systems with modern equipment

› Determining suitable and modern equipment and services for monitoring vessels in each certain area by considering the important factors such as wind, sea state, waterway condition, and traffic conditions

› Determining optimized locations of equipment such as radar, VHF, AIS and study the coverage of them

› Preparing Technical Specification & Tender Documents

› Reviewing the detailed design prepared by the contractor.

Customer Value Proposition (CVP)

› Reducing accidents

› Optimal use of port capacity

› Increasing efficiency of ports

› Reducing maritime traffic delays

› Increasing the safety of life at sea
› Protecting the marine environment
› Increasing safety in straits, river lengths, etc.
› Supporting for maritime security

Client

Ports and Maritime Organization.

Monenco Role

› Data gathering and gap analyzing of current aid to navigation systems
› Studying the maritime-related standards (IMO, IALA, and ITU-R)
› Risk assessment of each area and determining the suitable communication equipment in the area without such equipment
› Upgrading current VTS and AIS systems
› Preparing Technical Specification & Tender Documents
› Reviewing the detailed design prepared by the contractor.

Knowledge @ Monenco

IMO, IALA, and ITU-R standards, maritime regulation in Iran, risk assessment analysis, cost-benefit analysis, radar coverage software, radio link design software (Path loss, radio mobile). Traffic engineering.

Defining KPIs & KQIs for Supervision on Iran Fix and Mobile Operators Performance

Project Explanation

Deliverables of this project paved the way for CRA regulation on fixed and mobile Operator's performance by specifying Key Performance Indicators (KPIs) and Key Quality Indicators (KQIs) and also defining related guidelines. This project was divided into 3 phases as below:

Phase 1:
› Identifying and applying the best demonstrated practices in superior regulatory in the world.
› Review of Iranian operator's licenses.
› Specifying the proper KPIs and KQIs and set a limited range for these parameter values.

Phase 2:
› Defining the best approach to adequate supervision on fix and mobile operator's performance
› Providing a comprehensive questionnaire to evaluate customer satisfaction with operator's services
› Providing required template for SLAs/SQAs and defining effective punishment procedures for law – breaker operators
› Defining a comprehensive evaluation method for comparison between operator performance and the way of selecting the best one

Phase 3:
› Determination of measurement instruction and method along with tools, equipment and facilities in order to measure KPIs/KQIs
› Develop specification for measurement tools based on latest technologies.
› Providing a well–designed dash-board for management reports on operator's performance.

Customer Value Proposition (CVP)

› Proper Key Performance Indicators(KPIs) and Key Quality Indicators (KQIs) for monitoring the performance of the operators
› Instructions for measuring KPIs
› Regulation and punishment procedures for law-breaker operators
› New methods for identifying the best operators
› SLAs/SQAs template

Client

Iran Communication Regulatory Authority (CRA)

Monenco Role

› Providing required deliverables of project based on benchmarking of leading countries, standards , professional knowledge and practical experience
› Tailoring the best international practices to meet local requirement in Iran.
› Defining KPIs , KQIs , SLAs ,SQAs and punishment procedures

Knowledge @ Monenco

Wired and Wireless technologies, Regulation Standard, Supervising of Performance, Service Quality Assurance
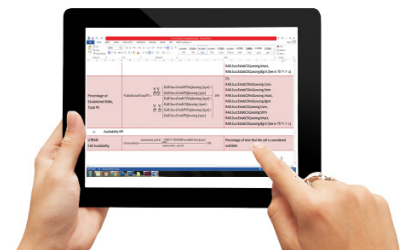
Consultancy Services for System Studies and Technical Assistance to Improve System

Project Explanation:

Power Grid Company of Bangladesh (PGCB) has plan to create a telecommunication infrastructure in order to exchange business- and mission-critical data and management of operations in such a bulk power system between pre-specified sources and destinations. From SCADA/EMS point of view, the purpose of the telecommunication system is to provide all the necessary telecommunication channels.

Customer Value Proposition (CVP)

› Improve system reliability and efficiency
› Comprehensive telecommunication plan for future

Client

Power Grid Company of Bangladesh

Monenco Role

› AS-IS analysis of current telecommunication infrastructure
› Case study and Benchmarking
› Solution for telecom network based on the best technologies.
› Preparing technical specification and required standards

Knowledge @ Monenco

› WAN Technologies like as IP/MPLS telecommunication network
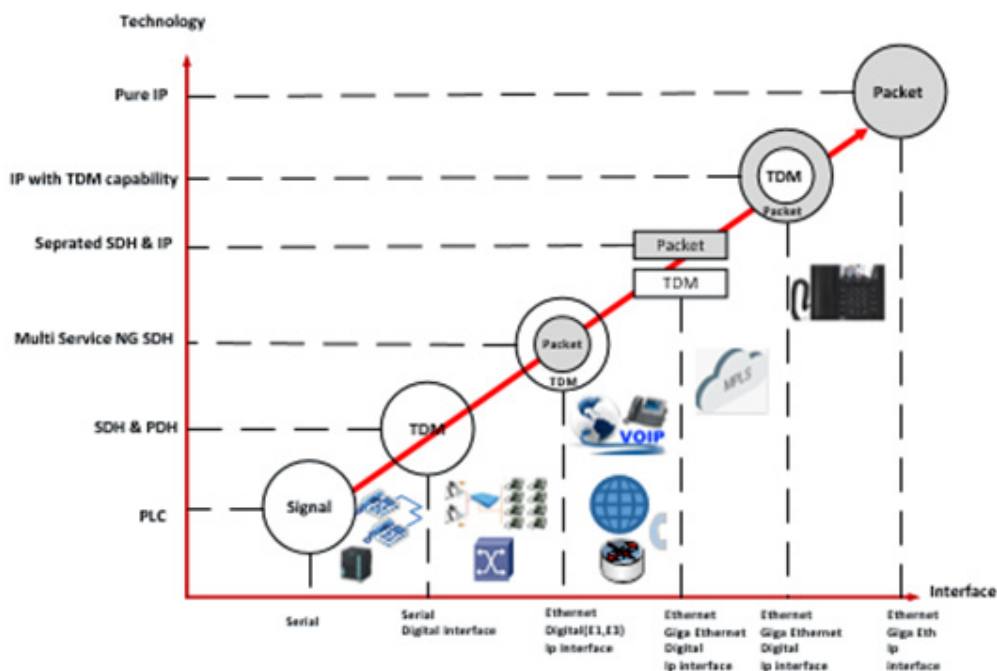
Realization of Telecommunication Architecture through PAEW Service Area

Project Explanation:

The client intended to expand the telecommunication network due to the expansion of its water network and connect many of the new stations through the fiber optic and active equipment to the PAEW main telecommunications network of the country. Oman has 10 provinces, which each of them has a separate control center. All information from each province should be collected at the control center of the province and then transferred to the main NDC in Muscat, the capital of Oman. In this project, OTDR test was performed for all fiber links in this country and included in the design.

Customer Value Proposition (CVP)

› Best optimum network design based on GIS files and optical design

› Technical specification complies with network requirement (passive and active equipment)

› Master database consists of all details of network design (Passive and Active)
› Deriving implementation plan and financial assessment

Client

Public Authority for Electricity & Water (PAEW)

Monenco Role

› Database and network drawing for the existing telecom system

› Gap analysis report for the telecom network (passive & active)

› Design report for establishing a manageable telecom system using the existing FO cables

› OTDR test reports

› Proposal report for the closing the gaps in the telecom network
› Required equipment specifications including the telecom network management system.
› Recommendations for the implementation of cyber security and IP addressing scheme.
› Methodology for the implementation
› Financial analysis

Knowledge @ Monenco

Fiber optic network design, cost benefits, technical scenario comparison, NMS design, cyber security, OPEX/CAPEX analysis, implementation planning, active network design

Consultancy Services for Kish Island Submarine Fiber Optic Cable

Project Explanation:

This project focuses on designing and building a submarine fiber optic cable system connecting mainland to Kish Island.

Kish Island is one of the most important islands of Persian Golf in terms of communication infrastructure. So presence of Iran Telecommunication Infrastructure Company (TIC) in this island is very important. In this regard Monenco Iran as one of the best consultants for the design of submarine fiber optic cable prepared an appropriate RFP for selecting the best design and implementation method based on standards and environmental considerations.

Customer Value Proposition (CVP)

› Stable communication

› Fiber optic infrastructure development

› Reducing OPEX due to replacing the old available fiber optic cable with the new one
› Redundancy Creation & reliability enhancement in connection to global broadband network

Client

Iran Telecommunication Infrastructure Company (TIC)

Monenco Role

› Providing design, implementation and supervision instructions
› Preparing a plan of contractor assessment
› Identifying skilled contractors
› Estimating the project cost
› Determining the methods of FAT, physical testing and delivery, PAC and FAC
› Developing RFP based on engineering principles and standards for the preparation and implementation of a 24 core submarine fiber optic cable

Knowledge @ Monenco

Submarine burial fiber optic cable design, desktop study and seabed survey instruction, cable burial instruction, recognition of required equipment for cable burial implementation, ICPC Recommendations, IEEE 1120, DNVGL-RP-0360, ITU-T G.970 to G.979, IEC 60794-3-30
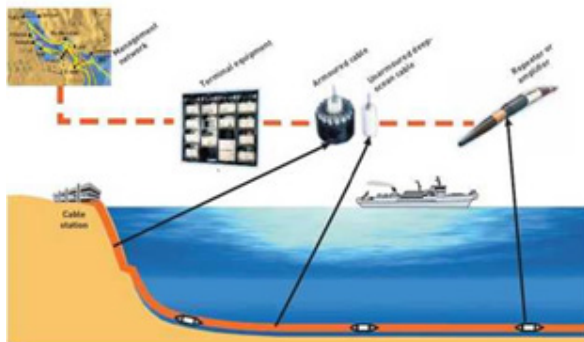
Engineering and Consultancy Services for Telecommunication Master Plans

Project Explanation

In such projects, the current status of telecom network shall be determined and the future requirement (services and routes) based on the tasks shall be defined. In the next phase of the project, the basic design of the integrated network (Fiber, Radio, PABx, Data Switch) and the technical specification of each telecom network component shall be generated.

Customer Value Proposition (CVP)

› Capex and Opex reduction, because of designing integrated network
› Identification of the future requirements and budget planning
› Diversified services
› Efficient telecommunication performance by monitoring of the network

Client

Regional Electric Companies,Iran Grid Management Co. (IGMC), Thermal Power Plants Holding Co. (TPPH), Imam Khomeini Airport (IKA), Iran Railway Company (IRC) and etc.

Monenco Role

› Data gathering, As-Is analysis, Benchmarking, Targeting and gap analysis
› Assessing and forecasting the telecommunication requirements
› Designing and planning telecommunication network,
› Providing tender documents and bid evaluation
› Ccontract negotiation

Knowledge @ Monenco

Fiber optic transmission and access system design, radio trunk systems design. IP integrated system design, technical specification for all part of telecom sector such as fiber, radio, IP switch and PABx.

Clients

We offer our services to a wide range of clients within the teleco-enterprise and telecommunication industries.

Some of the clients in telecommunication industry:

› Iran Ministry of Information & Communication Technology
› Iran Telecommunication Infrastructure Company (TIC)
› Iran Communications Regulatory Authority (CRA)
› Iranian-Net (4th Iranian Telecom Operator)
› Iran Mobin Electronis Development
› Iran Information Technology Organization

Some of the clients in teleco-enterprise sector:

› Iran Ministry of Power
› Iran Ministry of Transportation
› Iran Gas Engineering and Development Co.
› Iran Railway Company
› Iran Grid Management Co. (IGMC)
› Thermal Power Plants Holding Co. (TPPH)
› Public Authority of Electricity and Water of Oman
› Tehran Province Water and Wastewater Supply and Sanitation Co.

Range of Clients

40%

60%

■ Telecommunication
■ Enterprise
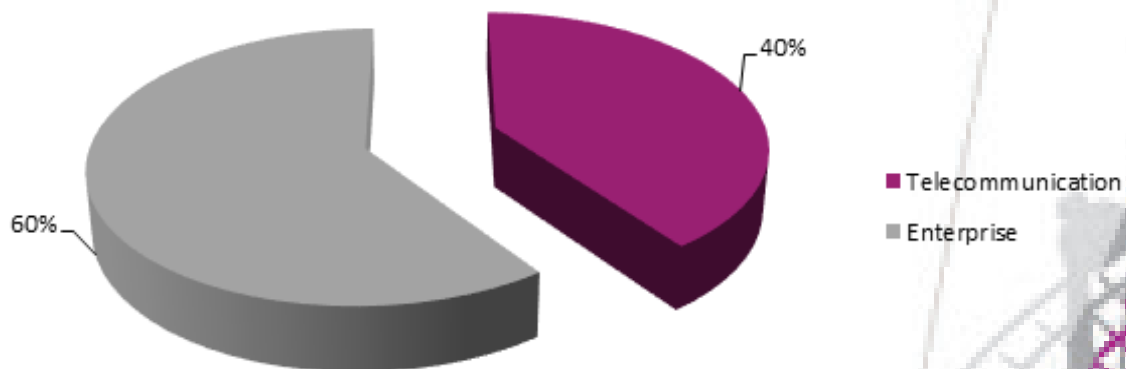
Clients Perspective

Communication Regulatory Authority	Appreciates the quality of the report and the existence of the integrated management system in Monenco
Iran Power Development Co.	Praises Monenco for the great engineering services and supervision on installing Iran Power Industry infrastructure of fiber optics
Iran Grid Management Co.	Appreciates Monenco role in the engineering, supervision and security of Iran National Dispatching Center and Backups.
Mapna Group	Appreciates the efforts of Monenco for development of road-side fiber optic business model.
Ministry of Information & Communication Technology	Mentions Monenco as a good example for a good consultant in terms of knowledge, transparency, time and cost efficiency and precision
Ministry of Information & Communication Technology	Awards Monenco as first rank company in export of knowledge-based products

Monenco Head Quarter

Monenco Iran Consulting Engineers
No. 12 Attar St., Vali Asr Ave., Vanak Sq.
Tehran, Iran
Tel: +98 21 81962061
Fax: +98 21 88771206
info@monencogroup.com
www.monencogroup.com

Registered Offices

Monenco Engineering Limited (MEL)

No. 52 Yedseram St., Flat 4 – Block 3,
Off IBB Blvd, Maitama, Abuja, Nigeria
Tel: +234 8037241612
+234 8073955611
info@monencogroup.com
nigeria.monencogroup.com

Monenco Consulting Engineers (MCE)

P.O. Box: 1139, P.C. 133, Al Khuwair,
Muscat, Sultanate of Oman
Tel: +968 24619229
Fax: 968 24619210
Oman.info@monencogroup.com
Oman.monencogroup.com

Monenco Germany GmbH

Bludenzer Street 6, 70469 Stuttgart, Germany
Phone: +49 711 89663141
Fax: +49 711 89663150
Mobile: +49 171 6693375
Email: Javad.Mehdi@monencogroup.com