CERT
PRESENTATION
1 INTRODUCTION

The Research and Studies Telecommunications Centre (CERT) is a public service provider under the Tunisian Ministry of Information Technology and Communication.

Created by Law No. 88-145 of 31 December 1988, the CERT began operations in February 1991 with the aim of sustaining development of the telecommunications sector and to support activities of the major ICT players.

Rich with skilled human resources (more than 100 ICT experts), CERT offers several strategic and innovative ICT services.

2 INTERVENTION AREAS

CERT consultants work primarily for project management assistance, with an advisory role and a mission of proposal and assistance to the contracting authority (telecom operators, regulators and private customers) to develop, manage and operate the projects undertaken by the contractor.

CERT is involved during different phases of a project:

- It defines / participates in the definition of strategic objectives and functional and technical needs.
- It identifies constraints and quality requirements according to users expectations,
- It identifies project organizational impacts,
- It ensures project implementation feasibility,
- It helps to choose appropriate solutions and providers ;
- It ensures the coordination and control throughout the life of the project;
- It controls and accepts services and deliverables provided by the contractor since drafting specifications to work execution.
- It audits achievements and proposes corrective actions and necessary enhancements.
3 OFFRED SERVICES

3.1 STRATEGIC STUDIES

CERT is a consulting firm specializing in strategic studies for development of ICT sector covering the following areas:

- ICT sector restructuration
- ICT regulatory framework Review
- Telecommunications sector Privatization
- Licensing specifications development
- Broadband development
- Study of technical and economic viability of mega projects
- Evaluation of the financial impact of new technologies on operator revenues (IP Telephony, NGN, FTTx, xDSL, ...)
- Benchmarking and comparative studies
- Universal access and universal services

3.2 CONSULTING

CERT is rich in expertise in different ICT areas; particularly CERT consultants are involved in the following aspects:
MOBILE NETWORKS ENGINEERING

GSM / GPRS / WCDMA / HSPA mobile networks planning, design and optimization
- QoS Optimisation
- Radio design.
- Frequency plan.
- BSS Setting.
- Neighborhood matrix.
- Radio sites planning

Microwave networks planning and optimisation
- Technology decision (PDH, SDH, Ethernet, IP, ...)
- Capacity Design
- Services definition
- Configuration (bands, channels, security, power, ...)
- links budgets
- Link optimisation

FM, DVB-T/T-DAB networks planning and optimisation
- Analog /Digital TV
- National DVB-T/T-DAB network planning (MFN and SFN modes),
- Coordination with neighboring countries,

Specific trainings
- Training of trainers
- Workshops

SPECTRUM MANAGEMENT

Spectrum management
- Procedures and applications,
- Frequency Band Allocation Plan
- Frequency plans (FH, DVB-T, FM, mobile, ...)
- Specifications for the acquisition of national spectrum management systems.
- Spectrum refarming

Spectrum control
- Procedures of frequency control
- Specifications of fixed and mobile Spectrum Monitoring Stations

ACCESS NETWORK ENGINEERING

Planning and design of new access networks:
- Optical network (FTTx, PON, GPON, ...).
- Hybrid networks (fiber/copper)
- Copper wire networks.

Rehabilitation of existing networks
- documentation update
- Analysis of the state of existing equipment and cables.
- Development of master plans for equipment.
Development of master plans for infrastructure lines
Studies drafting, implementation and development of specifications for bidding.
Management and monitoring of work performance
Studies of radio access networks (WLL, CDMA, ...)

BUSINESS NETWORKS ENGINEERING

Implementation study of local area networks (LAN, WLAN).
Sites Interconnection study (WAN).
Telephony solutions study (conventional or VOIP).

INFORMATION SYSTEMS ENGINEERING AND DATA NETWORKS SECURITY

Development of master plans
Studies of information systems implementation
Development of specifications for the procurement of equipment and software.
Managing implementation of information systems
Security audit and security of information systems
Developing solutions and integrated systems

3.3 AUDIT, EXPERTISE AND TECHNICAL ACCEPTANCE

Physical audit of ICT equipments/networks
  o Core network components,
  o Transmission networks,
  o Access networks,
  o Corporate networks
  o Data Centers
  o Power systems
Performance evaluation of mobile networks (GSM/GPRS/WCDMA/HSPA)
  o QoS evaluation : Access, radio coverage, quality of services
  o QoS Benchmarking in a multi-operator environment
  o Quality of Experience evaluation (QoE)
Performance evaluation of IP networks
  o ISP Internet service Evaluation
  o VoIP QoS evaluation
  o xDSL quality expertise
Monitoring work performance of ICT network installation
  o Monitoring and Supervision of Optical Fiber installations (backbone and access networks)
  o Monitoring and Supervision of Microwave installations
  o Monitoring and Supervision of network nodes installations
Technical Acceptance of ICT installations
  o Core network components
  o Transmission networks,
  o Access networks,
3.4 **Testing Labs**

- **Type approval lab**
  - Type approval of Telecommunications equipments
  - Technical contrôle
  - Conformity

- **EMC Labs**
  - EMC pré-compliance tests
  - Low voltage tests
  - Electrical tests

3.5 **One Stop Office**

The One Stop office was created on July 2008 in order to provide administrative authorizations when importing electronic communications systems and equipment.

It includes representatives of various stakeholders working in the field of Information Technology and Communication. It consists of following offices:

- CERT office
- National frequency agency office
- Electronic certification national agency office

4 **Quality**

Concerned by the promotion of the quality of its services, the CERT was engaged since 1999 in a quality aiming procedures focused on its acceptance procedure tests. The efforts made to harmonize the procedures of work in order to be conform to international standards were crowned by the obtention in April 2000 of the ISO 9002 Certificate (1994 F), covering all its activities related to the technical acceptance procedures. Moreover, the adoption the Process approach, introduced by the new ISO 9001 version 2000, have devoted the efficiency of the stock management and related activities for the service of the customer. The respect of costumer requirements, the taking into account of its needs and waitings and the increasing of its satisfaction are the objectives assigned to the system of management of the quality by the CERT. The CERT reached in March 2004 the certification of its quality management system for its activities related to technical acceptance tests, with the new ISO 9001 (version 2000) referential. The CERT Middle term objectives, are the generalization of the certification of all its activities, including the type approval laboratory -and its accreditation according under the referential ISO/CEI 17025 in the field of tests related to telecommunication terminal’s, analogue wired access, wireless digital terminals and faxes group III

5 **Partnership**
The partnership have been always, one of the strategic objectives of the (CERT), which does not cease being concretized through relations of partnership, exchanges of expertise, research and technology transfer projects.

In addition to its relationships to national establishments in the sector of Communication and Information Technologies as Tunisia Telecom, National Office of Broadcasting(ONT), the Tunisian Agency of Internet (ATI), the National Agency of Frequencies (ANF), the National Agency of Electronic Certification (ANCE), the Tunisian Enterprise of Companies of Telecommunication (SOTETEL), the CERT has success to set up many international partnership with several companies and international organizations:

- AT4Wireless, Espagne.
- EPITIRO, UK.
- Detecon, Allemagne.
- Sogreah, France.
- ETRI, Electronic and Telecommunication Research Center, Corée du Sud.
- ICU, Information and Communication University, Corée du Sud.
- NIA, National Information Agency, Corée Du Sud.

The CERT is an UIT-D sector member as "Scientific and Industrial Organization ". In 1992, it drew up a partnership project with l'UITidentified under the reference 9/TUN/92/01 This project made possible to CERT to acquire the necessary expertise of new technologies of telecommunications.

In addition, CERT is a member of the Steering Committee of the Centre of Excellence for the Arab Area. It is responsible for the program " Internet and Information Technologies ". Within the framework of this program, the CERT continues to organize each year workshops on IP technologies, IP and their applications, Digital Divide and networks security, New Generations networks and l'IPv6.

At the end of year 2000, the CERT was the first Arab centre to adhere to the ETSI (European Telecommunications Institute Standardization) as associated member. In this quality, the centre takes part to general assembly and particularly to TIPHON (Telecommunication and Internet Protocol Harmonization Over Networks) working groups meetings.
## 6 MAJOR REFERENCES

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<th>N°</th>
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