



NMSU fiber optic cable

ICT supports over one hundred 24x7 applications running on over 530 physical and virtual servers across an expansive wired and wireless network, providing technical services to meet the system-wide needs of NMSU...

...using 2,000,000,000,000,000 bytes (2 petabytes,) of storage across a network infrastructure that consists of over 150,000 miles of fiber and we handle over 8 million email messages. That's on a slow day.

ICT is a multifunctional organization whose purpose is to support New Mexico State University's computing technology, network, and telecommunication's needs. ICT is responsible for NMSU's central software systems such as Banner, which makes up the university's HR, finance, and student systems; email; Canvas --- the online Learning Management System; COGNOS, the application from which most university reporting originates; and a multitude of other systems on which the university relies to conduct its day-to-day operations.

Almost all of the central software systems run on computer servers that are under the direct control and supervision of ICT staff

and are housed securely in two separate locations on the Las Cruces Campus.

Critical data and related information services are passed throughout NMSU on an advanced wired and wireless network that stretches across the university's system of local and regional campuses, as well as around the state. In addition, university telecommunications, and fire and life safety systems also reside on an ICT-controlled network of switches, routers, and fiber optical cable.

ICT supports student, faculty and staff computing with computer labs, computer repair, help desk and related data and technology services. In addition, it provides central systems disaster recovery, university data security/integrity, and information technology compliance services.

**INFORMATION
AND
COMMUNICATION
TECHNOLOGIES
(ICT)**

Projects Completed and Underway

Selected Projects in FY15-16

- High Performance Computer established
- Began Banner 9 upgrade
- Virtual Desktop Infrastructure Pilot
- AS103 Math Emporium Program Development /Launch
- PCI DSS external assessment
- Added Adobe Connect to Canvas
- FERPA compliance rule
- IT Governance policy

Selected Level 1 Projects Underway

- Banner XE
- Chamisa Wireless
- Student, Staff, and Faculty Surveys
- HIPAA Compliance
- Payment Card Industry Data Security Standards
- GLBA (2.90.30)
- Pinnacle Billing System Upgrade
- Upgrade to Oracle 12C R2
- Incident Handling/Data Breach Rule

Challenges Facing ICT

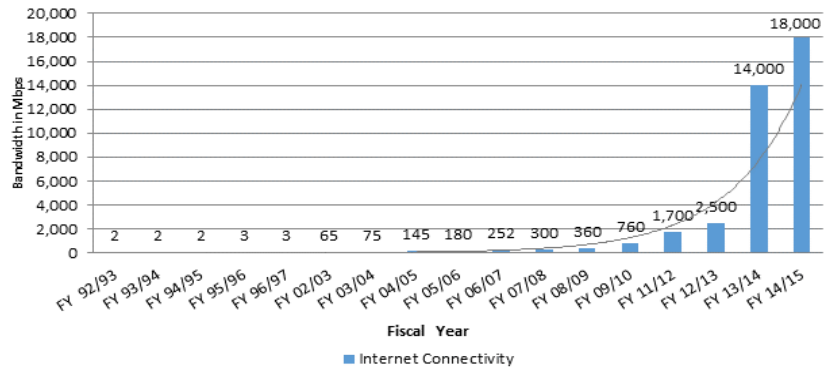
ICT faces many challenges throughout the fiscal year. One such challenge is the flattening of IT staffing levels at a time when information technology services have expanded into all aspects of NMSU business. The need for information technology solutions continues to grow while IT staffing levels do not. In fact, in fall 2008 ICT employed 122 regular staff and 154 students. Since that time, ICT staffing levels have dropped precipitously, with 20 fewer staff positions (92 filled and 10 unfilled), and approximately 80 fewer student staff.

Directly related to NMSU's growing information technology needs is the acceleration in student use of mobile and other network attached devices on campus. Growth in the number of devices, which results in an increase in demand for wired and wireless services as well as an increase in bandwidth requirements, necessitates that ICT actively and continuously anticipates future need and takes preemptive action to ensure service availability.

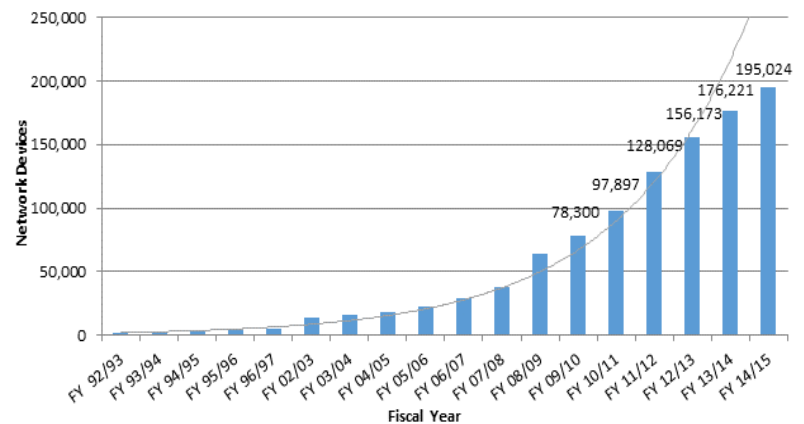
Additionally, because of the advances and proliferation of computing and communication technologies, where the business of NMSU is now wholly dependent on those technologies, ICT must develop resources in areas such as data security, government-mandated IT compliance, and human communications. Each of these areas require increased staffing levels with higher levels staff training and sophistication, as well as continual improvement and investment in supporting technologies, such as security appliances, higher bandwidth networks, and greater server processing capabilities.

To ensure data security and government-required compliance, ICT must find the necessary funding to meet its obligations to the University.

Growth in Network Bandwidth Usage



Growth in Network-attached Devices

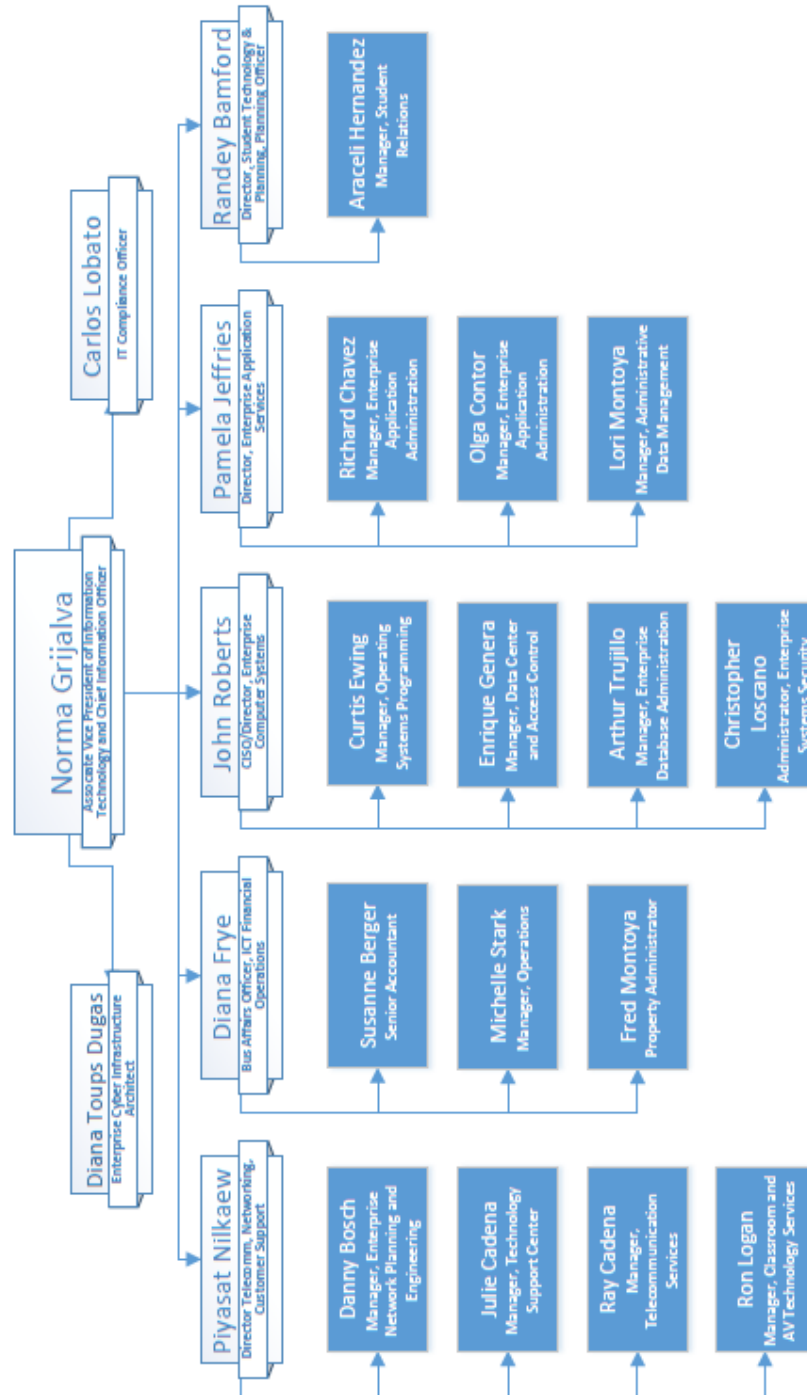


Submitted FY 18 Budget

	ICT	Telecom
Salary	6,499,956.00	2,161,248.00
Maintenance	2,993,089.00	420,000.00
Operational	1,437,500.00	1,745,444.00
Resale Inventory	479,500.00	1,000,000.00
Student Tech Fee	1,475,000.00	-
Other	0	0
TOTAL	12,885,045.00	5,326,692.00

Note: ICT budget reduced by \$757,749 from FY17 to FY18

ICT Organizational Chart





ICT Departments

Computer Systems (CS)

Designs, procures, implements, maintains, and oversees computer hardware, server software, IT security, data centers and database configurations. CS also provides server administration, database support and backup/recovery services to departments, colleges, and branch campuses across NMSU.

The aforementioned services support instruction, research, and administration consistent with New Mexico State University's mission. CS supports the expectation to engage in learning activities and business activities on a 24 X 7 basis.

CS provides services through the following:

- Systems Administration (Unix, Windows and Storage) – Enterprise server administration and systems planning.
- Data Centers and Access control – Center security, process scheduling and monitoring.
- Database Administration – Enterprise database management, backup and recovery.
- Information Security – Enterprise data security oversight, forensic investigation, threat/intrusion and security tool oversight.

ICT Enterprise Application Services (EAS)

EAS provides enterprise-wide reporting support and application integration that includes the design, development, and maintenance for applications such as ERP Banner, WebTailor, Banner Workflow, AiM, Saba, DARS, Evisions (Intellicheck, Form Fusion), Digital Measures, EPAF, Hobsons, Parchment, People Admin, Terra Dotta, TK20, Canvas, CRM Advise.

The support functions of EAS consist of:

- Administration Data Management – Decision support, report development and enterprise report deployment, business intelligence architecture and administration.
- Enterprise Information Services – Application development and administration, 3rd party application support.
- Product Development Services (PDS) - Custom Application Design/Development, Graphic & Web Design, Enterprise Third Party Application Support.



Telecommunication, Network, and Customer Support (TNCS)

Provides broad-ranging technology support wired and wireless network services at NMSU that encompass the following functional services:

- Classroom and AV tech services – Planning, construction, and oversight of the technology in NMSU’s 130+ “Smart” classrooms, as well as support for videoconferencing, campus cable TV, Aggie Vision, digital signage, satellite uplinks/downlinks and audio visual events at NMSU. Live webcasting of events such as BOR presentations, conferences and town hall meetings.
- Telecommunications services – Oversight of telecommunications services for NMSU, including office telephone, voice mail, and long distance services for faculty, staff, and students for Las Cruces, Albuquerque and Alamogordo campuses over a network of over 5,000 digital phones and 1500 analog lines.
- Alarm/protective services – Oversight of central alarm system with over 1200 alarm end points as well as the NMSU 911 system.
- Customer & technology support services – Support for the NMSU students, faculty, and staff with technical help (Help Desk 22,139 help requests taken in FY16-17), office software and virus/antimalware software installation, and computer maintenance. Faculty and staff hardware and software support, myNMSU portal and email issues support, and computer troubleshooting for students. Faculty and staff office computer support, installation and troubleshooting of hardware and software, application help, and technology consulting for faculty and staff. Support for ICT computer labs, oversight of software distribution like the Adobe suite, and technical consultation to student/staff/faculty.
- Network Services – NMSU system network, from cabling, routers, firewalls, to network appliances, switches and wireless equipment, supporting 35,000 device connections each day on a wireless and wireless system of thousands of miles of fiber optic cabling with over 1,800 access points and 1,200 switches. Highly flexible network protected with advance infrastructure security (firewalls, VPN, Packetshaper). Additional external network management of the Rio Grande Optical Network and CHECS-Net along the provision of internet service to community colleges and cooperative extension service offices.

Student Technology and Planning (STP)

Information and Communication Technologies’ (ICT) most outward-reaching and student-focused department. STP’s primary role is to provide student-focused services such as the management of the computer labs and equipment rental program. STP also manages Student Technology Fee Fund that funds student services such as computer labs and their management, wireless network access,



and the Equipment Rental program. Additionally, STP provides services to ICT in the form planning development and support, such as leading the development of the Disaster Recovery and Business Continuity Plan, Trends Analysis, and other reporting requirements as well as direct support to the Payment Card Industry Data Security Standards efforts at the university.

Functions of STP include the following:

- Lab operations oversight – Operation of the computer labs, scheduling and staffing.
- Planning and special projects development and management – Various ICT and Non-ICT planning projects, including Business Continuity and Disaster Recovery, Math Emporium - AS103 support management, Redundant Fiber Path, Payment Card Industry Data Security Standards (PCIDSS), CAMP, CELP, Virtual Desktop.
- Technology Fee Fund management – Oversight of the fund that supports Wireless network connectivity, Aggie Print (free printing), library Ipad checkout, Help Desk services, myNMSU, ICT Classroom & AV Tech Services, Computer labs (HJULC, Pete's, VDM...), Equipment Rental Program, Canvas Online Learning, Microsoft 365 online, ASNMSU voting site, Virtual Desktop Program, Sophos Antivirus.
- Student technology information services – Technology information to students in New Student Orientations, Aggiefest, Check-in/Check-up, Career Services Job Fair, FAFSA / Housing events, Cyber Security Month and Data Security Month, departmental information broadcasts, security releases, Technology Day, Monthly Information Tables.
- Student programs – Student managed programs include Equipment Rental, *Ask the Tech Advisor*, and Digital Signage.

IT Compliance Office

System-wide efforts in the development and implementation of information technology compliance policies and procedures, educational outreach, technical consultation, and ongoing operations.

- Risk Assessment – Risks associated with information security and compliance regulations.
- IT policy – University IT policies and procedures, information security, assurance, regulatory compliance, privacy, and risk management.
- IT Compliance – HIPAA, FERPA, PCI DSS, and other compliance areas where NMSU is at risk.
- Security initiatives – Prioritization based on risk and risk management or methodology.



- IT security architecture and risk assessment – Assessments of security and architecture of systems, related data, and compliance as it relates to changes in legislation.
- Special projects - Disaster recovery and incident response programs and plans that ensure business continuity management.
- Forensics – Investigations, eDiscovery and digital forensics.
- Technical Liaison – Audit services and external audit for ICT.

ICT Financial Operations

Management of billing/AR, inventory, accounting/reporting with key initiatives being expense management through reviews/audits and analysis of IT service costs, using a high level of specialized information technology knowledge to accommodate the various IT departments' needs.

ICT Financial Operations functions are as follows:

- Inventory and property administration - Technology asset management (Voice, Data, Classroom/AV Technology, PC Purchase Program) for enterprise and non-enterprise technology projects with a volume in excess of \$950,000 annually, 1,665 scanned pieces of equipment, 8 warehouses, 573 commodities.
- Program administration – Computing technology available to all university campuses and departments with pricing agreements with vendors and billing of inventory as needed.
- Charge integrity analysis and data management – Over 70 ICT internal user/administrators and 400 NMSU departmental or external users with annual transactions of \$7.8 million. Processed transactions include 14,635 service orders with 26 service types.
- Compliance – State and federal regulations for communications billing and PCard transactions, as well as administration of business processes and accounting rules resulting in the development of 15 automated and four published reports in the billing application system.
- Accounting, reporting, and forecasting – Financial information from all components of ICT to develop integrated revenue/expense analysis, projections, reports and presentations, such as monthly financials, Student Tech Fee reports, ERR/BRR reports. Etc.
- Fund management - I&G, Non I&G, agency accounts, and restricted funds management and forecasting in over 100 enterprise and departmental maintenance agreements, accounts for annual funds of \$17 million consisting of I&G Operations, 100+ Enterprise Maintenance Contracts, Inventory, Rate Recovery Services (Enterprise Software such as Microsoft Campus Agreements, Classroom Technology, and Communications Services), ChecsNet Agency CHECS-Net.



- Rate structure development – Internal services and Checs-Net agency accounts.
- Audits and analysis – Maintenance agreements that have saved hundreds of thousands of dollars and requires a high-level of understanding of technology for projects such as the complex telecommunication circuit inventory and related billing.
- Requisition management – 172 technical requisitions, not including the maintenance agreements or open orders.

Projects

As part of its internal data governance and project planning efforts, ICT has developed a project list that identifies the major projects that the department is currently engaged in/will be engaged in within the next year. Projects are categorized to identify by level of priority. The project priority levels are shown below:

- Level 1 - Required by law or regulation, data/system security imperative, system support termination, contractual/financial obligation, and/or by direction of BOR
- Level 2 - Operational requirement or directed by Executive Administration until IT Governance is implemented (President, Provost or Sr. VP of Adm and Finance, Audit Report)
- Level 3 - University-wide process improvement or enhancement to operations but not mandated by any Level 1 or 2 requirement.
- Level 4 - Best practice and nice-to-have but not a high priority and focused to a specific area

Of the 170+ projects on ICT's project list, more than 70 projects are currently on the No. 1 priority list, making them "must complete" by their due dates. The list of projects, sorted by their level of priority, is as follows:

Level 1

- Construction/Remodel - Rentfrow Gym Classrooms
- MyPayroll Gift
- Pipes to AQ Migration
- Campus EAI Upgrade
- DARS Upgrade
- Banner Extensibility Tools Installation/Configuration
- Construction/Remodel - Jett Hall Telecom
- Construction/Remodel - Jett Hall Network
- PCI DSS Compliance
- HIPAA Compliance
- IT Policies, Standards, Procedures and Guidelines (Audit follow-up)
- Identity Theft Prevention Program (2.91)
- GLBA (2.90.30) Protection of Non-public, Personal Information
- Renewal of RGON Contract
- Purchase, Configure & Install redundant next-generation perimeter firewalls



- Redhat 5 to 6 for boxes expiring in March 2017
- RT Upgrade/Enhancements
- Workflow upgrade
- Banner XE: SSO Manager Installation/Integration
- F5 iApps for Banner XE apps
- F5 Partitioning and Deployment
- Construction/Remodel - Jett Hall Classrooms
- Incident Handling/Data Breach Rule
- Chamisa STAC Upgrade
- Arrowhead Park Connectivity
- Alarm System IP deployment (Jett Hall)
- Network Equipment Password Change
- Verizon Small Cell
- DSL/Zoom modem conversion
- TV Broadcast for games and coaches shows (Aggie Vision)
- 2017 External IT Audit by Accounting Firm
- Rails Upgrade - Performance Evaluation App
- Banner Hardware Replacement - Solaris to Linux
- Privileged Access Management Audit
- Saba Upgrade
- CUI Program
- Privileged Accounts/Access Controls (EAS)
- ODI/ODS 9.0 Upgrade
- Network Penetration Test (Audit follow-up)
- 2018 Student Tech Fee Proposal Development
- Course Renumbering
- AS103 Math Emporium
- 2017 Skynet Security Camera Deployments Banner XE - Registration & Registration SS - need ECD
- Banner XE - Student SS - need ECD
- Upgrade fire suppression system in Primary Data Center-need ECD
- NIST SP 171 Analysis - need ECD
- Suspicious Contact Reporting at NMSU - need ECD
- Banner XE - Student Advising Profile - need ECD
- Student, Staff, Faculty IT surveys - need ECD
- TK20 - need ECD-add end date for contract; connect with Jennifer V.
- BEP/BEIS Upgrade 8.3.0 to 8.3.2 - need ECD
- Banner XE - Student Attendance Tracking
- Banner XE-Faculty Attendance Tracking SS
- Banner XE-Student Attendance Tracking SS
- Banner XE - Course Catalog
- Banner XE-Course Schedule
- Banner XE- Faculty Grade Entry
- Banner XE - A/R
- Banner XE - Academic History
- Banner Student API
- Banner XE - Student Overall
- Banner XE - Application Navigator
- Banner XE – General
- Banner XE - General SS
- Banner XE - Fin Procurement
- Banner XE - Admin Common
- Banner XE - Employee SS
- Banner XE - Financial Aid
- Banner XE - FinAid SS
- Upgrade to Oracle 12C R2
- Quicklaunch 4 Upgrade



Level 2

- Courseleaf
- Continuous Integration
- NMSUPD Life Safety Network
- EAS Transitioning Application Tier I support to the Help Desk
- Shibboleth common authentication services implementation
- Conflict of Interest (COI)
- Viper E911 CenturyLink Routing
- Systems billing
- Canvas Data Mart
- ICT Services Catalog
- CRM Advise
- Eduroam
- Core Router Software Upgrade
- Centrally Scheduled Classroom renovations/remodel
- Identity Management (IDM)
- Central ICT server & storage resources for college IT
- CISO Job Description - need ECD
- IT Business Continuity/Disaster Recovery Rule & Plan - need ECD
- High Performance Computing Outreach, Upgrades, Recovery - need ECD
- Incommon Security Certificate Purchase/Implementation - need ECD
- Mobile Device Encryption - need ECD
- Write Security & Data Policies for the ARP - need ECD
- Limit user access or Shield PII in Banner DB
- Audit ODBC & modify university procedures

Level 3

- Student Transactional Electronic Personnel Action Form
- Migration of A&S to ACN Domain
- VDI testing
- IT Policies Website
- Migration of Math Labs to CAN
- Jett Hall Computers Deployment
- Knowledgebase Upgrade
- Pinnacle workorder User Feedback Survey
- Incigna Monitoring/Notification System
- Tri-state fiber
- System Center Configuration Mgr (SCCM)
- Call Manager (CUCM) Upgrade
- Migration of ENGR domain to CAN
- Migration of ENGR Dean domain to CAN
- Migration of Math domains to CAN
- Migrate Sharepoint to Cloud - need ECD
- 2017 Wireless Backbone Infrastructure
- 2017 Campus Network Deployments
- 2017 Network Backbone Infrastructure
- ODS Data Lifecycle Management - need ECD; may be linked to ODS clean up
- Research & Develop Proposals for grants to fund Academic Computing - need ECD
- my Accounts Rewrite-NEED ECD
- SciQuest e-Procurement/Contract Management
- MayDay support for community colleges
- Development of bubble labs across campus
- Telreg/Netreg conversion
- New Data Center



- SCCM Deployment on Teach Stations
- Campus IPTV
- Ongoing Support for Transforming NMSU (EAS)
- ODS clean up - Phase 2 (archiving PITs)
- Ericsson/Cisco analog conversion
- Xmedius NMSU e-fax roll out
- Network Switches - new VLAN standard
- Purchase & Install Automatic Power Fail Over Switch for Primary Data Center
- Cisco Jabber roll out
- Primary Data Center Renovation-timeline all years-need ECD
- Decommission UNO-GW - need ECD
- Santa Fe Data Center
- Central calendar system
- End Point Encryption
- Develop and document Banner Audit capabilities
- Develop security audit schedule
- Develop Data Center Cost Model
- Develop New IT Funding formula for NMSU

Level 4

- Campus EAI Mobile
- RT Metrics/Portfolio Generation
- NMSU Org Chart Support
- Fair Labor Standards
- Central ticketing system
- Banner Advising, Degree Audit
- Recruiting and Admissions Performance
- Graduate School Electronic Forms
- Test Proctoring Process Enhancements
- Clock Me rewrite
- Phonebook Rewrite
- Travel & Expense System
- Manager (ESM)-provisioning
- Cognos Analytics Upgrade
- Research Phase III
- PSL Encumbrances
- Workflow/reports for SABA PI Intro
- Transforming NMSU (Team 3)
- Central scheduling calendar
- Data Governance Program
- IT Governance and associated policies
- Password Management Tool implementation & deployment
- SSO (move applications to Devise-Cas) Ellucian Solutions M