Project Managing Building **Projects** in the **Telecoms** Industry

Jumoke Fasheun-Motesho, MNIA; PMP, PRINCE2 Practitioner November 2016





- The telecommunications sector comprises companies that make communication possible on a global scale whether through the Phone or Internet.
- These companies create the infrastructure that allows data to be sent anywhere in the world. The largest companies in the sector are wireless operators, satellite companies, cable companies and Internet Service Providers.

Investopedia

http://www.investopedia.com/ask/answers/070815/whattelecommunications-sector.asp#ixzz4PRAnW3ML

What is the Telecommunications Sector?

- Prior to 1999, when the complete deregulation of the telecom sector, occurred, there were less than 500,000 telephone lines in Nigeria.
- Today, available statistics shows that active GSM mobile subscriptions in Nigeria stand at a little over 120 million, representing 98.31 per cent of the market share of the telecoms industry.
- MTN leads the market with almost 50% of the market share.
- In 15 years phone lines have increased exponentially. How has this been achieved?
- In the beginning, the emphasis was on Voice (phone calls), today it is all about data and content......



Telecommunications in Nigeria

A project is a *"temporary endeavor undertaken to create a unique product, service or result."*



a result expected to last for centuries. Pro

 TEMPORARY in that it has a defined beginning and end in time, and therefore defined scope and resources.

- PMBOK

 UNIQUE in that it is not a routine operation, but a specific set of operations designed to accomplish a singular goal.

What is a Project?

- **Project Management**, is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.
- It has always been practiced informally, but began to emerge as a distinct profession in the mid-20th century.
- Its value is proved by its rapid, worldwide growth:
 - as a recognized and strategic organizational competence
 - as a subject for training and education
 - as a career path
- Project Management is in great demand as a profession and its certifications are highly sought after today.

Project Management







- The term "Project" is familiar to Architects as the end result of almost all our endeavors are called "projects".
- PMI's A Guide to the Project Management Body of Knowledge (PMBOK[®]) identifies its recurring elements: 5 processes and 10 Knowledge Areas



Architecture and Project Management

- **Time** This refers to the actual time required to produce a deliverable (end result of the project).
- **Cost** This is the estimation of the amount of money that will be required to complete the project. Cost itself encompasses various things, such as: resources, labor rates for contractors, risk estimates, bills of materials, etc. All aspects of the project that have a monetary component are made part of the overall cost structure.
- Scope These are the functional elements that, when completed, make up the end deliverable for the project. The scope itself is generally identified up front so as to give the project the best chance of success.
- The common success measure for the scope aspect of a project is its inherent **quality** upon delivery.

TRIPLE CONSTRAINTS



- A Corporate Entity
 - Provides products, goods and services
 - Is in business to make profit
 - Maintain a corporate Image
- Whatever sector the company operates in, it needs facilities to achieve its mission and vision

- A team of construction industry professionals who
 - provide expert direction and coordinate all processes involved in the design and construction of all company buildings, spatial facilities and installations in strict compliance to all company requirements and international quality and safety standards.
 - Monitor the implementation of all building construction projects (technical and non-technical) to ensure they are built to client (user department) specifications.



Facilities Function in Corporate Sector

"It is the responsibility of the **Facilities Implementation** team to build, renovate or upgrade building properties for business purposes."



Monitor the implementation of all building construction projects (technical and non-technical) to ensure they are built to client (user department) specifications.

- Consultants
- Contractors
 - Suppliers

Also offer advisory services to other units – property management/procurement

Facilities Implementation

Provide expert direction and coordinate all processes involved in the design and construction of all company buildings, spatial facilities and installations in strict compliance to all company requirements and international quality and safety standards. In the industry we have 2 primary building facility types, namely:

- Technical: These are buildings that pertain are peculiar to the industry and support the network. Without these there will be no network.
- Non-Technical: Support Buildings to ensure the smooth running of operations



TECHNICAL Switches Data Centres Disaster Recovery Centres Cable Landing Stations Cable Landing Stations

Offices Customer Service Centres Dealer Outlets/Depots Call Centres Warehouses Others: Fuel Dump, Car Parks, Jetty Terminal

Facility Types

- Each industry has its characteristics.
- Telecoms is characterized by the following:
 - Capital Intensive
 - Very dynamic rapidly changing environment
 - Highly Technology dependent
 - Highly Energy dependent
- In response to the above, our top design priorities for our buildings include
 - Modularity and Flexibility modular, scalable, easily demountable key elements in allowing for technical buildings to grow and change over time
 - Transparency Use of glazing as much as possible,
 - Consideration for Services reticulation of cables,
 - Power/Energy Independence Energy
 - Image/Form
 - **Finishes** maintenance friendly and utilitarian

Design Priorities

- Technical Buildings are our flagship buildings, without these there would be no network.
 - Telecom Switch facilities are telephone exchange buildings housing a equipment/plants that connects phone calls.
 - A Data Centre is a facility that centralizes an organization's IT operations and equipment, and where it stores, manages, and disseminates its data.
 - A cable landing station is the location where a submarine or other underwater cable makes landfall and connects into the land-based infrastructure or network.
- Technical Buildings can be "brick and mortar" or Pre-fabricated.
 - Brick and Mortar: Purpose built Buildings. Cheaper but will take longer
 - Pre-fabricated: These are container modules already fitted out with required equipment and services. These are quicker to deploy but are more expensive.

Technical Facilities



Pre-Fab Switch Containers

- Technical Facilities operate 24/7. They never go down
- The Mechanical and Electrical (M&E) input into these buildings are relatively more complex than the average building type.
- In term of costs, the ratio of Civil Works to M&E works ranges from approximately 40:60 to 35:65
- Technical Spaces typically have raised flooring which provide a plenum for air to circulate below the floor (air conditioning system), as well as providing space for power cabling.
- Level of Services coordination is very high. Everything is labelled.

Technical Facilities





Technical Facilities: Coordinating Services





Technical Facilities: Coordinating Services

• Space Accommodation:

- Technical Switch Space (White Space)
- OMC
- NOC (Network Operations Centre)
- Energy Centres Generators, Diesel Tanks, Panel Rooms, UPS Rooms, UPS Battery Rooms,
- Ancillary Facilities: Reception, Office Space, overnight sleeping quarters, stores, conveniences

Structural Considerations

- High Space Headroom To allow for services reticulation from above and beneath
- Modular and Scalable Systems
- Concrete roof/plenums
- No Windows
- Compartmentalisation of Spaces/ Fire wall
- Ample provision for Vertical risers (ducts), sleeves

Technical Facilities



- The Data Centre Tier Design system
 is a certification of Data Centres that
 is used to depict availability,
 reliability and security of Data
 Centres with regards to vital
 components
 - Power system,
 - Cooling System and
 - Hardware.
- Security (physical and virtual) and reliability of data centers and their information is a top design priority.
- In Nigeria, the highest we can achieve for now is Tier 3

Data Centres Tier Design Level

Mechanical & Electrical Design Streams include

- Electrical
 - Source: Mains (PHCN) and Standby/Back up
 - Type:
 - Dirty Power PHCN, Generators
 - Clean Power Uninterruptible Power sources (UPS) battery banks, generators, and redundant power sources
- HVAC (Heating, Ventilation and Air Conditioning)
- The physical environment of a technical facility is rigorously controlled. Air Conditioning is used to control the temperature and humidity in a technical facility.
 - Precision Cooling Systems for white spaces (Computer Room Air Conditioner
 - Hot and Cold Aisles
 - Use of Raised floors
 - Regular Cooling for other spaces

M&E Design Components





Mechanical & Electrical Design Streams include

- Plumbing
- Fire Alarm and Fire Protection (Smoke and heat detectors, Hydrants)
- Fire Suppression (clean agent fire suppression gaseous system and Sprinklers)
- Access Control Card Readers, Finger print Recognition Systems
- LAN/WAN (IT) Infrastructure
- CCTV
- Water Treatment
- Sewage Treatment

M&E Design Components





- Like the technical buildings, our non-technical facilities are expected to
 - Be flexible
 - Integrating technology, comfort and safety, and
 - Be energy efficient
 - Cost-effective,
 - and aesthetically pleasing working environment.
- The architectural style is left to the discretion of the consultants.
- To assist the consultants we issue design briefs alongside our other standard documents:
 - Look and Feel document,
 - Typical Room/Space Data sheets
 - Space Plan Document
- Designs take the following fundamental elements into account:
 - Transparent, open areas, with minimal partitions, except those done for security and safety reasons;
 - Intelligent building i.e. automated but with "invisible" wiring and less visible fixtures.
 - It is advised that the buildings are characterized by lightness via the use of light materials and less heavy reinforced concrete.

Non-Technical Facilities Design Priorities

There is a constant tug between business policies and industry standards



Company policies, processes and procedures **Professional** ethics/Industry **Standards**

Industry Challenges for Architect Project Managers

- No clear career path in the corporate world. Facilities role is a support/general services role. Hence there is no clearcut career path.
- Not all companies have the volume of building projects to justify the permanent employment of a dedicated building project Implementation team.
- A lot of Project Managers work on a contract and not on a permanent staff basis.
- Most Architects tend to transit to a Facilities Management role (operations)





Industry Challenges for Architect Project Managers

- Every Course you are taught in school ultimately matters
 - Services are very important as we are in the Information age, technology advances everyday. Buildings get more "intelligent" by the day
 - Structures –
 - Quantity Surveying –
 - Materials
 - Construction
- Pay attention to details: The edge comes from the degree of attention to details. The difference between Category A and B contractors and others is the attention paid to the details.
- Never stop learning Skills taught in architectural school amount to only about 35% maximum of what is actually required to carry out a successful Architectural Practice (Bello M.B.). 65% is acquired over a lifetime.

Important to Know

God is in the details.

- Ludwig Mies van der Rohe

Telecoms will be relevant for a long time to come

"The telecom sector continues to be at the epicenter for growth, innovation, and disruption for virtually any industry."

Craig Wigginton, Vice Chairman and US Telecommunications Leader, Deloitte & Touche LLP.



