



GWFF

GEOSPATIAL WORLD FORUM

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Limitless Possibilities. Boundless Opportunities.

Decarbonisation – Role of GISin Telecom

Dr. Rajeev Saraf, CEO

Overview - Scope 1 to 3 Emissions

Scope 3 emissions are most difficult to monitor, control and report largely outsourced products and services.

Scope 3 emissions are where GIS can play a critical role.



Overview - Scope 3 Emissions

More Assets create more carbon footprint

- ✓ Initial deployment
- ✓ Operations and Maintenance

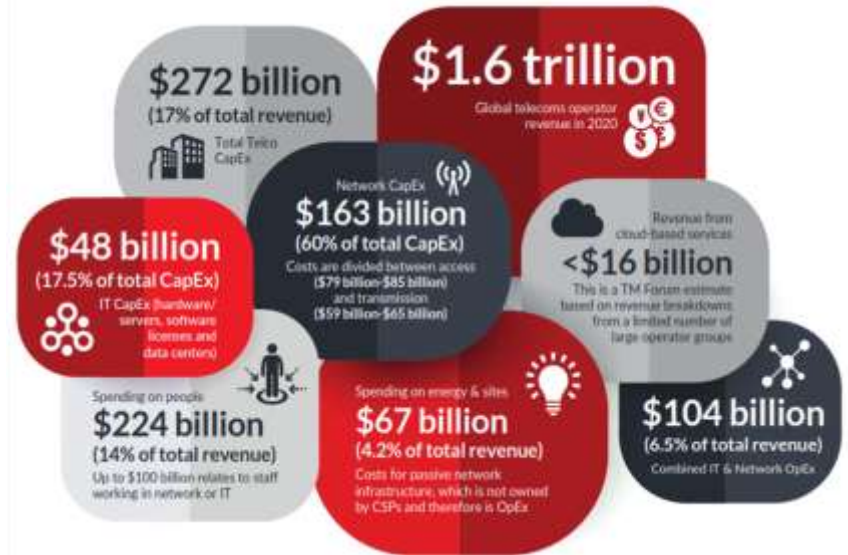
Travel and Transportation creates huge carbon footprint

- ✓ Employees
- ✓ Service Assurance team
- ✓ Service delivery team

- Purchased goods and services (category 1) including but not limited to :
 - ✓ Purchases related to offered services (cradle-to-gate).
 - ✓ Purchases related to used services (Life Cycle).
- Capital goods (category 2), including:
 - ✓ Own information technology (IT) equipment (cradle-to-gate).
 - ✓ Own Telecommunication towers.
 - ✓ Machinery.
- Fuel and energy-related activities (category 3) are:
 - ✓ Associated with the organizations own scope and scope emissions.
 - ✓ See clarification in category 3 section on Efs.
- Upstream leased assets (category 8), such as:
 - ✓ Leased^k IT equipment (cradle-to-gate).
 - ✓ Leased telecommunication towers (Towercos).
 - ✓ Leased IT or Telecommunication facilities (cradle-to-gate)
- Use of sold products (category 11), Including scopes 1 and 2 emissions:
 - ✓ Operation of products and services .
 - ✓ Use of support equipment necessary to operate the equipment (power supply and cooling)
- Downstream leased assets (category 13). Such as:
 - ✓ Scopes 1 and 2 emissions due to operation of provided products and services.

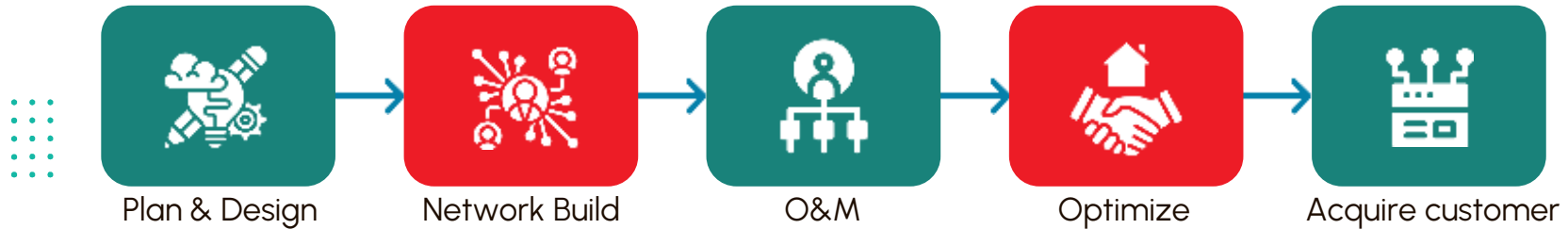
Capex and Opex

- Every capital expenditure leads to long term Operational costs
- It is expected that out of USD 100 spent on an asset, USD 50 to 60 is operational cost over a 10-year period.



Welding Pieces Together

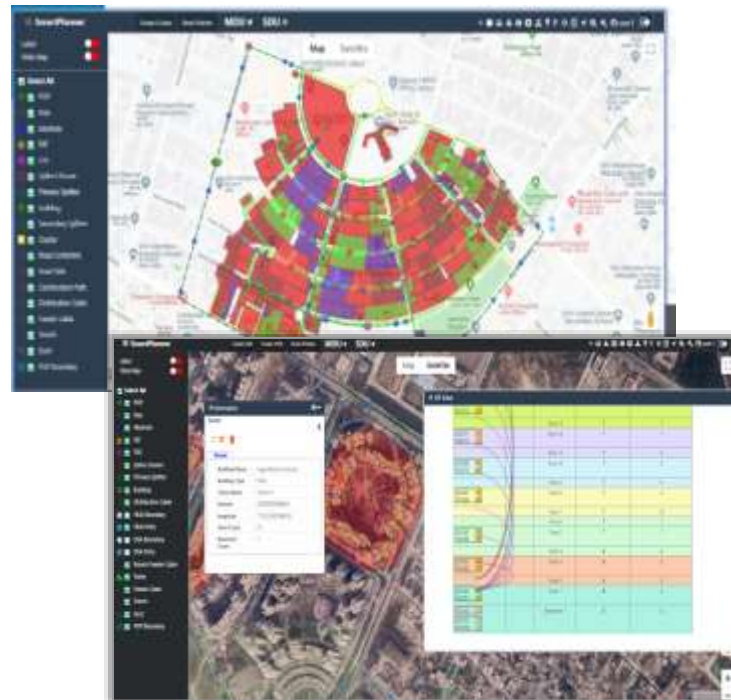
A typical Telco lifecycle



The Geospatial technology plays an important role at each Stage in reducing emissions

It all begins with planning !!

- Smart planning can reduce asset requirement
- Less assets will have lesser carbon footprint during deployment as well as during lifecycle



Case study: Bharat net Project



- One of the largest fiber project globally
- To connect 250,000 Gram Panchayat (a level above Village) across the country
- More than 600,000 kms of fiber laid
- Estimated 300,000 kms new fiber to be laid



Bharatnet Project planning challenges



Complex Infrastructure Deployment

Decisions on routing, equipment placement, and infrastructure integration lead to complexity and time challenges.



Geographical Variability

Diverse geographic terrains, including urban, rural, and difficult landscapes create challenges.



ROW & Regulatory Compliance

Create planning challenges



High Costs

High material, labor, equipment, and technology costs



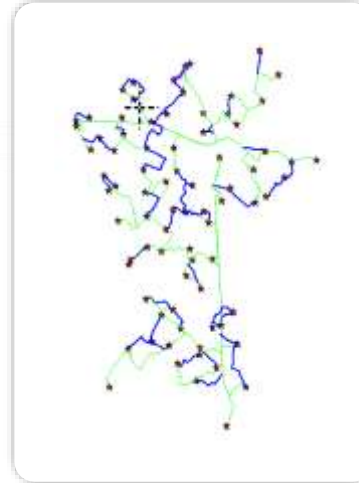
Resource Allocation

Efficient resource allocation, considering factors like capacity, demand, and future growth,



Smart Planning Impact !!

- Fiber asset requirement reduced by 13% as compared to manual planning
- Less manufacturing
- Less assets will have lesser carbon footprint during deployment and during lifecycle
- Reduction in 30,000 kms of fiber deployment



Description	Manual Length, Kms	Automation Length, kms	Diff
Existing Network Length	149.06	149.06	0%
New planned network length	97.63	85.30	13%

O&M- Big impact

- Each Fiber km creates on average 200 km of travel per year for Preventive maintenance & Fault repair
- Reduction in 30,000 kms of fiber leads to less 6 million kms of travel per year
- Approx savings of 6 million Kg of CO₂ over lifecycle

Size of bike	kg of CO ₂ e, per km	kg of CO ₂ e, per mile
Small	0.08277kg	0.13321kg
Medium	0.10086kg	0.16230kg
Large	0.13237kg	0.21302kg
Average	0.11337kg	0.18245kg

GIS Impact on Operations

- Optimising Preventive maintenance using GIS, fault data and AI
- Optimised Routing for Fault repair or new installation
- Beat plans for home delivery of Sims



Vodafone: A field force of 10,000 reduced travel requirements by 30%

Customer Acquisition - Efficient Service Qualification

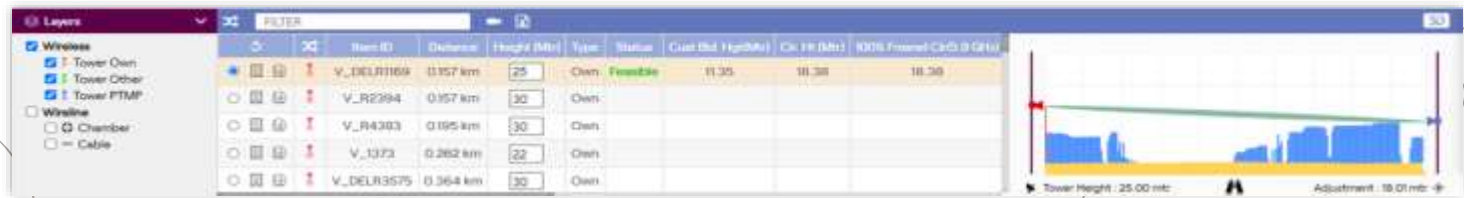
- Only 10% of leads gets converted into a deal
- Accurate Network modelling – Digital twin of the network using SmartInventory
- Precise environment modelling – DTM, 3D buildings and vegetation



Case Study: Leading Telco



- More than 5000 requests per month across the country
- Physically visiting each request
- Required approx 300 to 500 km travel
- Time taken to revert to request was more than a week
- Approx. 15 million kms of travel saved per year



Outcomes

90% Reduction in Field Survey



80% Reduction in Emissions



25% Improvement in Inventory Utilization



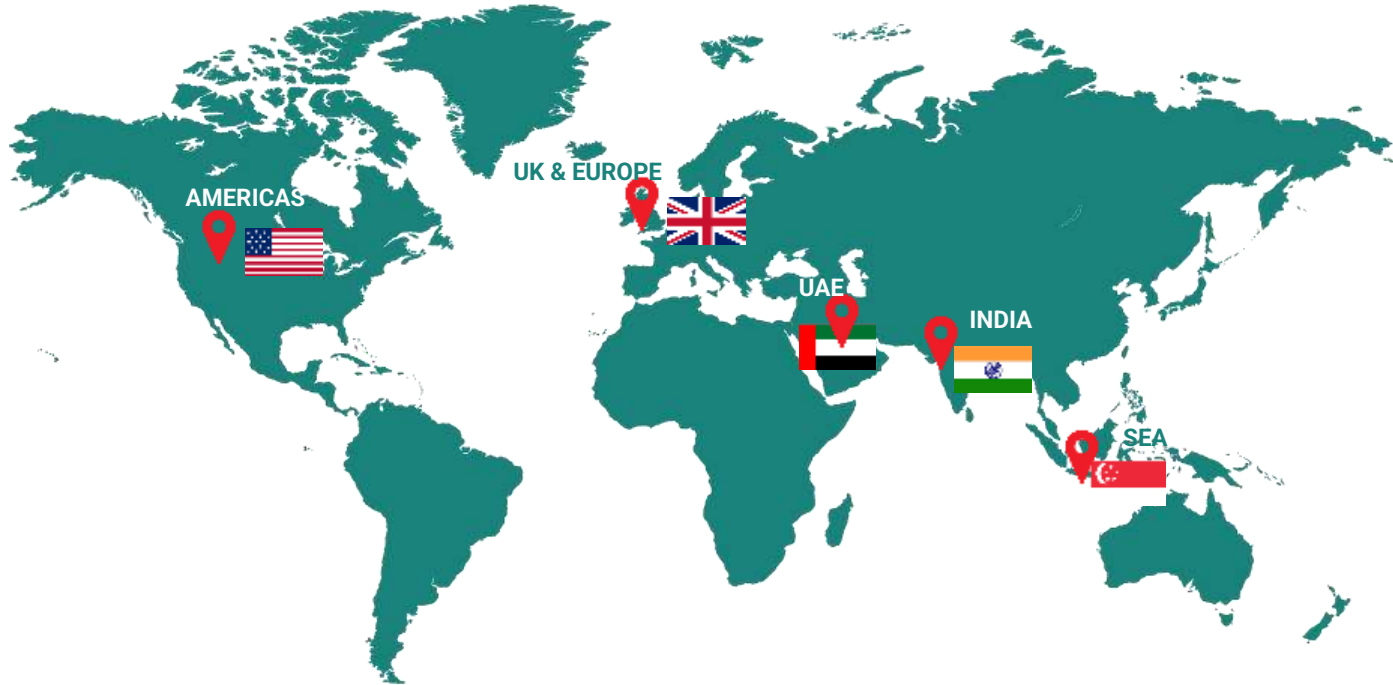
80% reduction in time and cost

90% Increase in Customer Satisfaction



The benefits are beyond emissions !!

Let's Connect



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