Honoring Commitments.....

VS Geospatial Technologies

Company Profile

VS Geospatial Technologies

Index

VS Geospatial Technologies

1   About Us

VS engineering is an emerging GIS, Quality focused, Utility Mapping & Consultancy service provider committed to provide a cost effective and efficient solutions & Services to Customers across the Globe.

We have the professionals who are empowering this organization with their huge experiences of core competencies in providing Project consultancy services and Implementation in GIS, Remote Sensing & Telecom Projects, Network Engineer implementation, Utility Data Conversion and Migration, to offshore as well as onshore clients

Prior to establishing VS Engineering these professionals were associated with MNC's for a duration ranging from 6 to 14 years who were implementing the Projects in the Global Market these have got the chance to work with Reliance, TCS, RMSI, Infotech Enterprises in Indian Market) These were actively leading the GIS & Telecom division's, they have successfully executed many National as well as International projects across the globe on the cutting edge technologies.

VS also provide consultancy services starting from Project initiation, Work Shop Conducting, Carrying out POC (Proof of Concept), Project Execution & Project Implementation till the project closure taking all the risks and challenges into consideration. We strictly keep an eye over quality to ensure that there should be less iteration in terms of data delivery, which reduces the implementation cost of the Client. Organization structure, Capacity and available solution's and strength are the important constituents of our planning and execution.

Our team at VS is not Software/Application /Format/Source Dependent, Our vast experience helps us to provide integrated solution, support, quality and cost effective service to our end esteemed clients.

Our delivery mechanism is such that we remain neck to neck with customer's time zone and also works with the client in order to understand their requirements and expectations.

Honesty and Integrity are our top Priorities. Our Goal is to gain our customers trust and respect through a good standard of Ethics and Professionalism.

Our Vision We have the ambition and drive required to stay at the front line of the evolutionary chain and to create a unique identity and place in the Industry where we can deliver irreplaceable Solution and Services for our valuable partners.

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2 Services Offered

We offer the following services to our Esteemed Clients across globe in the following Areas/Sectors

Services	Sectors	Description of Services
GIS	Geospatial	Land base Creation using Satellite Imagery (Ikonos, Geoeye, Google), Maps,
		Remote Sensing, like Ortho-Rectification, Land use & Land Cover Classification using Digitization or Classification Techniques
		GIS Mapping like Digitization, Drafting using Different sources like using images, Web Application, Links, Data Dictionary
		DEM, DTM Data Creation
		LIDAR Data Classification
Utility Sector	Telecom	Conversion and Migration of Telecom Data into Network Engineer or any other System like Small World, Spatial Net
		OSP(Out Side Plan) & ISP (Inside Plant) Conversion
		Creation of Details Views like (Manhole Layout View, Span Cross Section views, Inside Plan View) etc
		Planning and Designing of FTTX Network based on inputs from the Client
		Work Order Implementation (Online as well as Offline)
	Power & Water	Conversion and Migration of Power Network Data, Water, Sewage Network Data into GIS System
		Creation of Network Data using various international accepted data models
	OIL & Gas	Profile and Alignment Sheets (2D or 3D Alignment Sheets) using Survey Data, Legacy Sources available with Client
		Conversion & Migration into target System based on the Client Required and System Data Model
		Creation of Integrated System/Map, Plotting
	Civil	Creation of Floor Plans/ Layout Plans
		Creation of Poly lining to Know the Square Footages Using IFMA & BOMA Standards
		Creation/ Conversion of Civil Data to carry the Space management Analysis
Project Consultancy	All Utilities	Technical Documentation
		Effort Estimation
		Rule Base Creation, FDS, DMS , Conversion Specification, Data Model Creation, Field Mapping & Model Mapping
		Work Shop Conducting, for Requirement analysis , System Study, Data analysis, target System Requirement, Business Flow under
Training	GIS & Utility Soft wares	(GIS/Software Training(AutoCAD, Arc GIS, Quantum-GIS, Network Engineering, Arc View, Arc Info, Micro station, AI ,Civil 3d, Spatial Net)
		Project Training (Execution, Implementation, Delivery)
Data Management	Data Entry/Extraction	Data Entry, Data Creation, Scanning, Printing, Plotting, Data Messaging
		Conversion to XMLS, HTMl's, PDF's, JPG's,

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3   Projects Executed

Following are some of the projects which we have either executed or are executing currently

3.1   FTTX Planning & Designing

The telecommunications has matured to offer network convergence and enable the revolution of consumer media device interaction. The ageing copper access infrastructure in residential and business locations is unable to meet the demand of increase in bandwidth for several applications. These demands can only be met by the deeper penetration of optical fiber in Access network and increasing deployment of Fiber to the Home (FTTH). As a result FTTH is the fast growing global broadband technology with significant deployments World-Wide

Figure. 4 FTTx – OLT and Optical Distribution Network (ODN)

The development of single mode optical fiber, with its nearly unlimited bandwidth has unlocked the possibilities for massive deployment of long Haul and access fiber networks, resulting in three important changes.

- Huge Capacity increase
- Substantial cost reductions in equipment, operations and maintenance
- Significantly improved quality of service
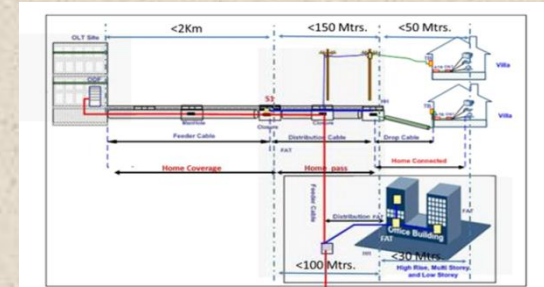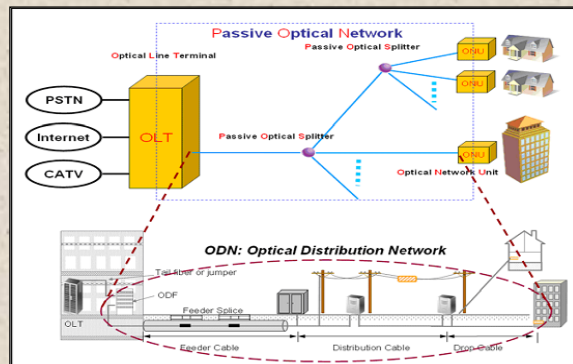- Unrestricted-Bandwidth, Distance and Coverage , Upgrade

Figure. 33 FTTx – Construction Methodology

VS Engineering is responsible for designing the entire ODN for FTTx. (Fiber Network to the home). The Optical Distribution Network (ODN) design service shall cover a comprehensive and customized network design service proposal, which includes capacity, resources etc., helping Customer to design the FTTx network in a more economic and reliable way, we are alsoresponsible for consistent and optimized designs of the FTTx Network for Client. It is ensuring that all the plans and designs are delivered in soft-file in the format specified by Client following the rules required to plan ODN in target platform.

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Project involves planning & designing of FTTx Network in telecom software Telecom Software from the Enode B/OLT till the End Consumer level. This Requires following Experience and knowledge from VS Engineering.

- Clustering of Building's based on Consumer Counts
- Splitter Staging
- Feeder Ring Planning using Existing routes/Sites
- Distribution Routing
- Placement of Infrastructure & Telec Features
- Clustering of Splitters
- Core Assignment Feeder & Distribution

- Distribution & Drop Cable Consideration
- Feeder Path Diagram & Feeder Cable Consideration
- Creation of Network Elements in the Target Telecom Software.
- Preparation of BOM and BOQ
- Preparation of Splice Plan
- Connectivity Creation

3.2 Network Engineer Implementation at VS

Network Engineer is a scalable, GIS-based network management system that helps you efficiently plan, design, maintain and document ongoing changes to your inside and outside plant facilities. So you can streamline work order management and accurately track all of your moving pieces, from cabling to equipment. VS is involved in carrying out the FTTH Role out (Design and Planning of FTTX Network) using the Network Engineer

The Core team at VS does bring lot of this experience with them, as previously they were involved implementing of the same solution at various international and national client sites. They have got the experience of OSP and ISP data conversion, Migration, designing and planning experience with them.
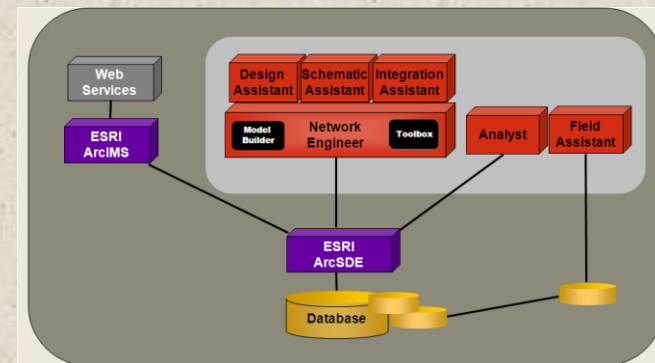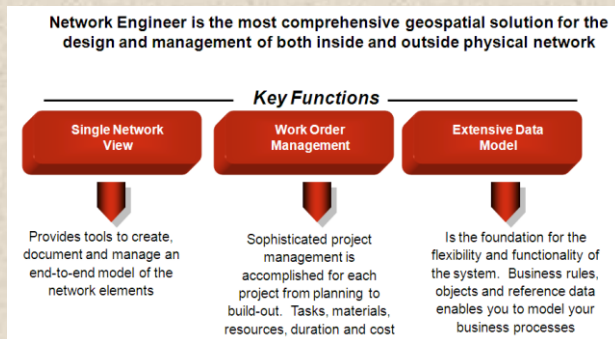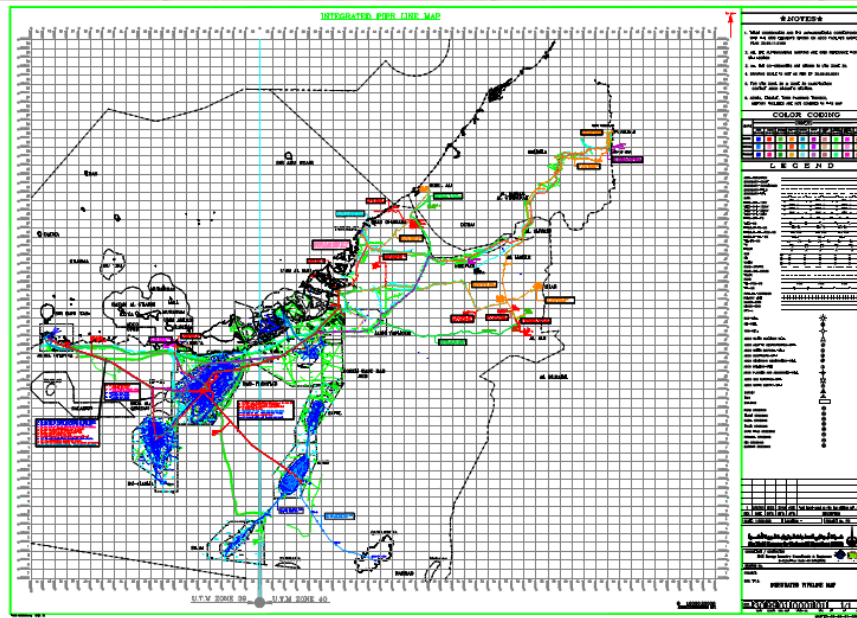

3.3 Creation of Integrated Pipeline Map

The Client is one of the biggest Oil producing Company in UAE. The Company for Onshore Oil Operations operates onshore and in shallow coastal water of the Emirate of Abu Dhabi, one of the seven members of the United Arab Emirates which was established on 2nd December 1971.

The integrated pipeline map was created based on the source of inputs, type of inputs and the requirement gathered from the end user and the Client. VS engineering was involved in this project from Carrying out the Work shop to gather the requirements and to freeze the data model of the target GIS System. Plotting was also part of the scope. We know that the pipelines network originates

from wellhead through the tough terrain terminating at refinery and/or sea port.

Several operating, controlling and monitoring assets/equipment are installed on along the entire pipeline network. The major pipelines are constructed using the alignment sheets which contains the greater engineering details and entire corridor geographical information.

The data was captured from different sources. Most of the data was already in CAD format. Data collation started from locating the well to the right location as per its latitude and longitude.

The flow lines were overlaid. Since, well has the flow line number and every flow line has well number so a home grown mathematical model was used to logically connect the flow line with well. Similarly, the flow lines were connected to trunk line then to Main Oil Lines (MOL). Several assets and plants as coming across the network were also captured to build the spatial network. The communication network (fiber and copper), water network electrical network and railway line network was also being captured as these infrastructures are critical while planning the new well location and hydrocarbon (oil and/or Gas) collection network.

The plant details were captured from the Plant Layout. Similarly, several assets deployed along the pipeline network of approx. 12,000 running Km's (including flow lines) were picked up along with its functional and engineering properties.

Since, alignment sheets were found most accurate and details engineering knowledge available with client hence, it was used to develop the onshore pipeline network system.

Flow line does not have any "As Built Drawing", hence the flow line information (layout and associated data) were captured from the Line Routing Plans.

The complexity of this project was that data was available in different data format, and different scale. Even the same data set was available in different format so data collation ensuring the desired accuracy was the biggest challenge.

The 1 meter satellite data was used to ensure that the entire pipeline network is accurate. Several desired features line, rig crossing, sand tracks, corridors, well fence were captured from satellite images.

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The major challenge in the project was extraction of data from alignment sheets. Smart automation was being done towards capturing of data from alignment sheets, and automatically cleaning the pipe centerline data adhering to Client CAD manual, automatically picking the desired construction, corridor, crossing, surface and subsurface data from alignment sheet and appending it in the onshore pipeline system ensuring the scale and projection system. One can understand the project intricacy, that the data were available across three projection system and scale ranging from 1:150 till 1:66,000.

3.4 View shed Analysis and Land base creation.

Client is the largest global player in smart metering with one of the broadest portfolios in the industry, its products, solutions and services empower utilities and consumers with the data necessary to make informed decisions about energy usage

In order to find the accurate location of installation of meters based on the geographical location, Client wanted to create a land base data where VS was asked to create or extract the land base features such as Road Edge, Road Centre Line, Building, Hydrology Features, Vegetation, Open Space Boundary mapping. Labeling Sector No, Road Name, Land Marks using satellite imagery. Attribute data like road name, locality name, building names etc was also extracted for the same data set. The same data was cleaned and was corrected topologically to be imported or used by any third party software.
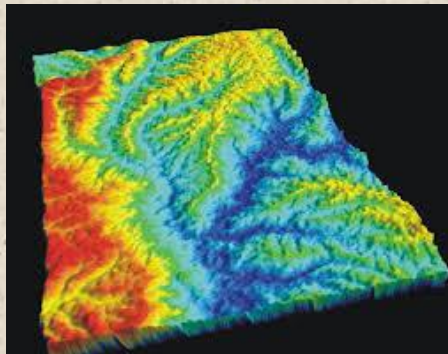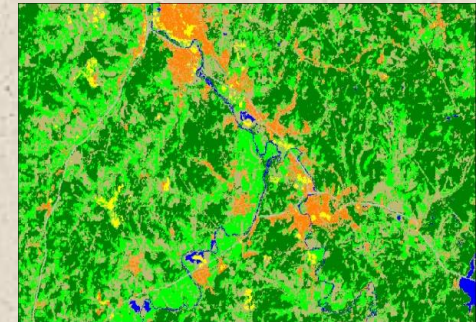
VS were also asked to create the DEM (Digital Elevation Module) which will give client the 3D representation of a terrain's surface of the area of Interest. DEM data was used for carrying out the View shed analysis by client.

A view Shed is an area that is visible from a specific location. View Shed analyses are a common function of most GIS software. The analysis uses the elevation value of each cell of the DEM to determine visibility to or from a particular cell. The location of this particular cell varies depending on the needs of the analysis. View Shed analysis is commonly used to locate communication towers or determining the view from a road.

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3.5 Creation of 2D Alignment sheets for Oil Pipeline (Pipeline Alignment Planning & Route visualization in 3D)

This project required survey of whole pipeline and creation of complete pipeline alignment based on the survey inputs. We also created a 3D visualization (Fly-through) for whole pipeline. The platform used for creation of alignment sheets was Autocad Civil 3d.

- Creation of Template in AutoCAD for alignment sheets
- Conversion of Survey inputs in AutoCAD
- Creation of surface (DEM)
- Creation of Alignments between IP Points

- Marking of Crossing features on the Pipeline.

- Image Processing or Pan Sharpening
- Creation of Land base Data from Satellite image
- Creation of Elevation Profile of Pipeline
- Generation of Different Alignment sheets for whole pipeline
- Creation of 3d Visualization for whole scene
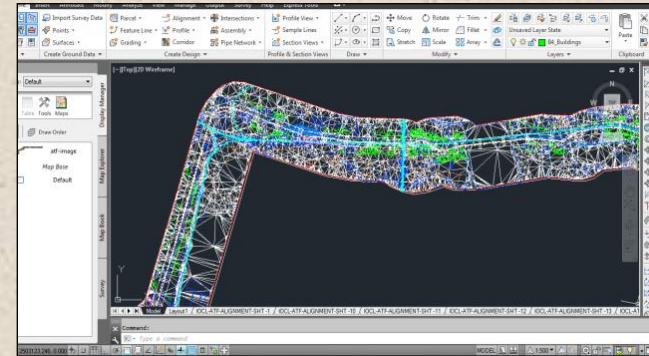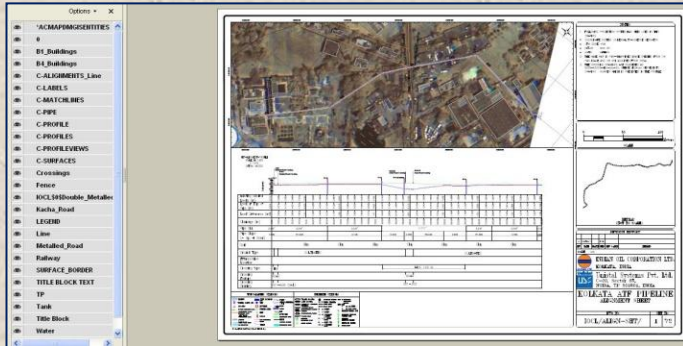
3.6 Golf Course creation on Web based application

The scope includes creating electronic polygons (or digitizing) certain golf course features visible in Satellite Maps. The overall process is known as Geo-Fencing and has to be carried out as part of the Company's plan to Geo-Fence over 25,000 separate Golf course maps capturing features such as Tee-Boxes, Green, Fairways, and Bunkers

The platform was a web GIS application developed by the client, who provided all the tools required for capturing the data, and also manages the database, creates reports and also provides the functionality of marking issues.

3.7 Space Management

3.7.1 Conversion of Floor Plan

Client provides a complete solution for the allocation and management of company workspaces. Featuring an intuitive and user-friendly web-based interface built with cutting edge technology.

The Solution offers administrators a powerful visual tool with which to effortlessly manage employee moves and to accurately track cubicles, rooms and spaces with their entire related asset and attribute information.


Inputs were provided in the form of PDF, BMP, CAD files of Different floor plans. The project involves also the cleaning of the provided input and its conversion to the compatible format which can be migrated to their solution.
It also involves data entry of different allocated workspaces which act as information for the migrated data

3.7.2 Polylining & Square Footage Calculation

For some of the Clients in the Civil sector we are providing these kind of services as well, where we are asked to tell our customers the actual Square Footage of the usable or unusable area, the needs or requirements differ from client to client, taking the experience and the requirement from the customer we start this exercise by doing Polylining for the required area which does help us to know and record the square footage for that used area.
Currently while doing this exercise we have seen there are two main standards getting used on global level which are known as IFMA & other is known as BOMA standard.
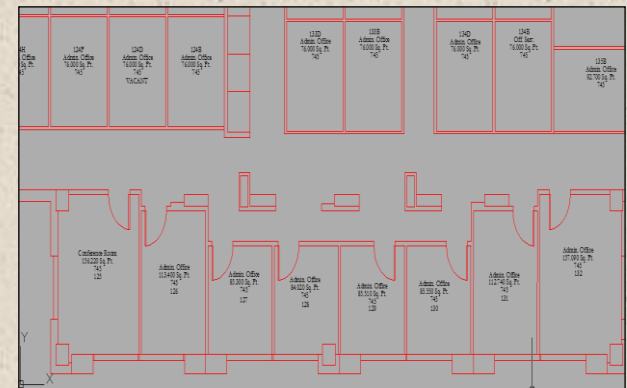
Polylining the Floor Plans and Layout plans and to extract the Square footage using IFMA (**IFMA**, **International Facility Management Association** (formerly National Facility Management Association) & BOMA (Building Owners and Managers Association. **BOMA**, **Building Owners Management Association**) Standards

3.8 Project Consultancy

VS Engineering is also providing the Consultancy services to some of the companies in the NCR, We also provide resources to our esteemed customers/clients to work on their site with their customers/clients. In the last year we have been providing consultancy services on a telecom project " FTTH Role Out " to one of the company within NCR. Right now till this date as well we do have one of our SME who is working with them on the same project at their site only. The Project is related to FTTH Role out as well.

3.9 GIS & Remote sensing study of command area & canal system for Bhakra & Gang Canal System

The Scope of the project was to design GIS System which will store, retrieve, manage, display and analyze all geographical features/spatial data and characteristics of the network of Bhakra Canal & Gang Canal system, its command area (down to chak/field level) and farmers. Canal networks was developed in form of nodes or points for various structures on canals including outlets, lines for channels and canal command/subcommands, Outlet command areas as polygons and maps as raster images.
Suitable geo-coding for canal and canal structures, outlets and other spatial data shall be created.
All technical data, maps, and drawings related to the canal system was collected from the authorities of the project, and that pertaining to command area from CAD authorities, agriculture/revenue state groundwater board offices.
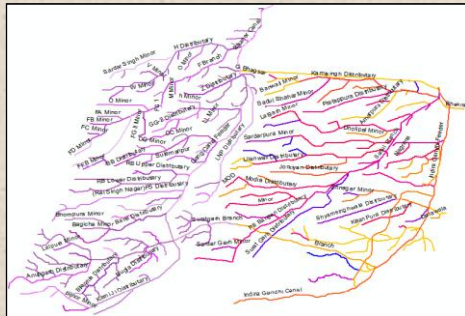
Canal Network Database and Mapping:-Canal Network include main, branch, distributaries and minors and water courses. Technical particulars of the canal segments and structures, including outlets were attached to specific nodes and line segments of the canal.
Technical data for canals included length, NSL, bed level and width, side slope, bed slope, Mannings 'n' , design discharge and full supply depth/water levels, top of embankment at all key locations.
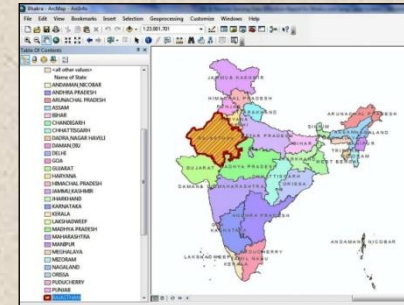
Structures were identified by type, canal RD at which located, physical dimensions, and discharge rating tables in case of flow control/measuring structures.
The outlets were identified by appropriate numbering to distinguish between approved and unapproved outlets and a relational database on their technical & hydraulic features, such as location and type of outlet.
Its physical setting and dimensions, design discharge and CCA, FSL of parent channel and water course, and irrigated area and water users' particulars.

3.10 Land base creation

Land base includes the natural and man-made environmental features within which infrastructure is developed or by which natural resources are indexed and analyzed. These maps depict in detail ground relief (landforms and terrain), drainage
 (lakes and rivers), forest cover, administrative areas, populated areas, transportation routes and facilities (including roads and railways), and other man-made features.

Scope

The project comprises of geo-referencing, projection conversion, image enhancement, vector digitizing on various satellite images depending on client's requirement, assigning unique-id to each entity and making the data topologically correct. Plots of different scale have been taken of digitized drawing with plot-id displayed on every entity for field survey. After the field survey the map has to be updated.

The tasks involved are:

➢ Features identification, orientation, rotation and extraction (Vegetation, Wetland, Hydro – infrastructures, industrial, commercial areas, geological features like esker, dyke, landform and sand.).

➢ Capturing and Classification of all themes and entities like Hydrological, Hypsography, vegetation and manmade features (Rail, Road and Power Networks).

➢ Digitization, label separation and Attribution (Object and extended data).Edge matching
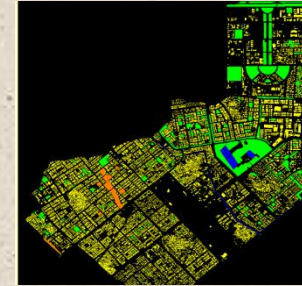
3.11 Land Use and Land Cover Classification, Orthorectification

3.11.1 Ortho Rectification

Digital satellite images and aerial photographs play an important role in general mapping, as well as GIS data acquisition and visualization. First, they help provide a solid visual effect. Many people are more able to put spatial concepts into perspective when they see photos. In addition, the secondary and perhaps more vital role is to provide a basis for gathering spatial information

Before this information can be gathered in a manner that is useful for a mapping or GIS system, the satellite image data or aerial photographs must be prepared in a way that removes distortion from the image.

This process is called orthorectification, also known as orthoimagery, is precisely registered to a ground coordinate system and the image scale is constant throughout the entire image.
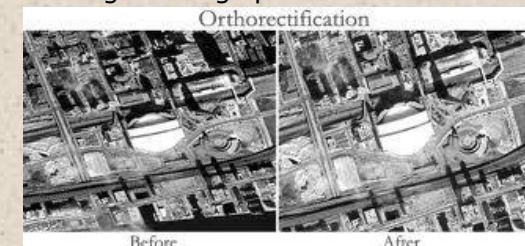
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Orthorectified imagery is also free of artifacts, such as leaning objects and crooked linear features, due to relief displacement. These properties make orthoimagery 'map accurate' and the clear choice for applications that require accurate positional information and precise measurement of features.

3.11.2 Image Classification

The intent of the classification process is to categorize all pixels in a digital image into one of several land cover classes, or "themes".
This categorized data may then be used to produce thematic maps of the land cover present in an image. Normally, multispectral data are used to perform the classification and, indeed, the spectral pattern present within the data for each pixel is used as the numerical basis for categorization.
We at VS Eng have successfully executed Remote sensing projects which includes Digital Image Processing Techniques for Image restoration, correction, Enhancement, Resolution Merging, as well Information extraction through Image classification.
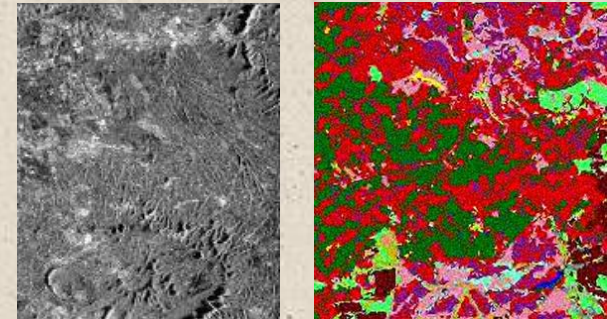
3.12 Data Management

VS Engineer has also carried out the following tasks for some of the clients where we asked to create data from various sources and the target data was required in MS Access & XLS files.
We have done data linking of the records as well were the client was providing certain codes based on which the data was supposed to be linked.

3.12.1 Data Entry

- Data Entry from various hardcopy maps, scanned images, or from some Web Site, or from Survey
- Data Scanning
- Data Mining
- Data Linking with Graphical Data
- Data manipulation
- Data Extraction from Data Bases like (Oracle, MS Access, XLS etc)

3.12.2 Data Conversion

Conversion of Formats from one to another or vices versa
Conversion from one format to another like To Doc, XLS, XML, JPG, PNG, PDF, RTF or Vice Versa

4 VS Engineering Advantages

4.1 Our Benefits / Why VS Geospatial Technologies?

- Sound experience in dealing with telecom data of various regions of the world
- Awareness and understanding of Any Source or Format
- Experience in working on Copper as well as Fiber
- Experience in FTTx (Planning and Design), OSP, ISP
- Young and Enthusiastic team
- A team of highly capable technical and functional experts
- All your technological needs under one roof
- Access to diversified pool of skilled professionals
- Client Satisfaction is one and only goal
- Flawless track record of delivering value of technology
- Ability to increase your resource base without hiring expensive manpower
- Process centric approach to project development
- Cross platform technical competence
- Great expertise across emerging and legacy technologies
- Highly tested project execution methodology ensures a low risk, predictable path to success
- Quick and reliable delivery mechanism - On Time on Budget Deliveries
- Significant cost advantage - Lowest cost structure
- India advantages
- Seamless communication... Transparent and guaranteed
- Daily and weekly working reporting as per your need.
- Years of experience
- Faster, effective, risk-free expansion of your technical needs in off-the-shelf manner
- Maximum advantage at minimal risk

4.2 Our Experiences

VS Engineering & Geospatial Consultants is motivated & lead by the people who have got rich & vast experience in the field of GIS and Utility, Software Development & Engineering Project in (Telecom/Gas/Oil/Water/Power) field across the Globe.
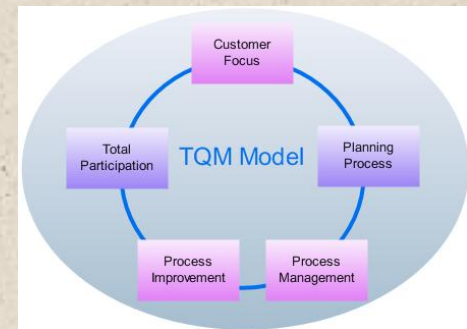
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During their tenure with the previous companies they have the chance of executing GIS and Network Engineer Implementation projects with some of the renowned companies of the world. Some of the companies whose projects they have managed from offshore as well as onshore are as under

1. Qatar Telecom
2. Thunderbay Telcom- Canada
3. Sasktel – Canada
4. Swiss Telcom- Switzer Land
5. MoC- Kuwait
6. Qatar Telecom- Doha
7. AT & T – USA
8. Telecfonica- SPAIN.
9. Telecordia Technologies
10. Qwest Telecom
11. Reliance Mumbai India
12. Tata Consultancy Services

During their project execution they have done the following tasks which are as under

- Conduction of Work Shop
- Rule base creation
- Training to the End User
- FDS Creation
- DMS Creation
- Network Engineer Configuration
- Data Conversion and Migration
- System Study and Work flow understanding
- Project Execution & Project Management

- Qa & Qc
- Online Work Order Updation & Implementation

4.3 Continual Improvement

VS Engineering & Geospatial Consultants arranges every month training by internal & External Experienced people to train their people on latest technologies, latest processes as well as latest opportunities.

These training are conducted on the basis of opportunities available in the market. It is a Continuous exercise to develop our teams to take any challenge. Seniors as well as juniors at VS Engineering sit neck to neck in order to share the knowledge.

We always prefer to do pilot methodology for execution of any project. We do not want to follow any methodology which will cause rework which becomes a unknown risk for project Our advantages are as under Generating Customer Value High Quality On Time Delivery Flexibility & Responsiveness Confidentiality and Data Security Competitive Pricing Team Coordination

4.4 Our Approach

We follow TQM approach which is a comprehensive and structured approach to organizational management that achieves best quality of products and services through using effectively refinements in response to continuous feedback, and through using them effectively in order to deliver best value for the customer, while achieving long term objectives of the organization.

The roots of Total Quality Management (TQM) go back to the teachings of drucker, juran, deming, ishikawa, crosby, feigenbaum and countless other people that have studied, practiced, and tried to refine the process of organizational management. TQM is a collection of principles, techniques, processes, and best practices that over time have been proven effective. Most all world-class organizations exhibit the majority of behaviors that are typically identified with TQM.

4.4.1   Guideline for Total Quality Management

Total quality management transcends the product quality approach, involves everyone in the organization, and encompasses its every function: administration, communications, distribution, manufacturing, marketing, planning, training, etc. There are many guidelines of total quality management around to create the TQM diagrams. The general guideline of total quality management contain the following items.TQM is a customer focused approach

- It is companywide strategy and involves everyone in the organization
- Aims at satisfying the customer or delighting them
- Provides best quality product and satisfy them in a cost effective manner
- Fundamental changes in basic beliefs and practices
- Prevention of defects is the way and the target is zero defects
- Total quality management is methodical
- Provides meaningful measures of performance that guide the self-improvement efforts of everyone involved

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5 Our Location, Presence, Contacts

5.1 Location;-

We are situated at Delhi and our office location is at |O-25| A - 4| Dilshad Garden| New Delhi-110095|

5.2 Presence

VS engineering is having its presence in the global market (National and International Market) at INDIA,US, UK & Middle East as well, Currently our target is to extend it to Europe, Canada & China, to add some esteemed clients.

5.3 Our Contacts

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