GIS is...

Geographic Information System
GIS involves

- Information about your world
- Represented by points, lines, areas, and images
- At any scale, local to global
- Explored on a computer

www.nhgis.org
GIS performs several key activities

- **Visualizing spatial information**...“making maps”
- **Analyzing spatial information**...“asking questions of the maps and data”
- **Managing spatial information**...“integrating, maintaining, and distributing spatial data using a common geographic foundation”
Equipped with...

- Questions, problems
- Geographic perspective
- Computer hardware
- GIS software/tools
- Data
- Methods and workflows

...ESRI users working independently and in collaborative teams...
ESRI users are working on all of our world’s challenges for creating a sustainable future ... in many walks of life.
GIS career examples: Humanitarian assistance
GIS career examples: Disaster tracking/response
GIS career examples: Health

- Disease Cluster Mapping
- Disease Surveillance
- Demographic Analysis
GIS career examples: Law enforcement

CBP MAPPING

SAN DIEGO

Hot Spot ID

Crime Analysis

Crime Tracking

Border Control
GIS career examples: Business

- Customer/Store Modeling
- Wireless Coverage
- Territory Analysis
- Site Location
- Real Estate
GIS career examples: Conservation

- Scenic Byway Planning
- Land Analysis
- Forest Density Monitoring
- Vegetation Mapping
So, where do people use GIS? Everywhere.

www.esri.com/industries

- Business
  - Business Solutions
  - Financial Services
  - Insurance
  - Media and Press
  - Real Estate

- Defense
  - Defense and Intelligence

- Education
  - Universities and Community Colleges
  - Schools (K–12)
  - Libraries and Museums
  - Youth & Community

- Engineering
  - Civil Engineering
  - Surveying

- Government
  - Economic Development
  - Elections
  - Federal
  - Homeland Security
  - Land Records and Cadastral Solutions
  - Law Enforcement
  - Public Safety
  - State and Local
  - Sustainable Development
  - Urban and Regional Planning

- Health and Human Services
  - Hospitals and Health Systems
  - Public Health and Human Services

- National Mapping & Cartographic Publishing
  - Map, Chart, and Data Production

- Natural Resources
  - Agriculture
  - Archaeology
  - Cave and Karst
  - Climate
  - Environmental Management
  - Forestry
  - Marine and Coast
  - Mining and Earth Science
  - Petroleum
  - The Society for Conservation GIS
  - Water Resources

- Transportation
  - Logistics
  - Transportation Systems and Networks

- Utilities
  - Electric and Gas
  - Location-Based Services
  - Pipeline
  - Telecommunications
  - Water/Wastewater
Jobs, tasks, and professions using GIS and geospatial technologies

- Academic Research
- Advertising Management & Sales
- Advertising Analysis
- Aerial Photographic Services
- Aerial Survey Flight Planning
- Aeronautical Charting Services
- Air Quality Analysis & Smog Warning Services
- Airborne Digital Video Imagery Services
- Airborne Hyperspectral Imaging Services
- Airborne Laser Topographic Mapping Systems
- Airborne Lidar Mapping Services
- Airborne Radar Imaging Services
- Aircraft Noise Analysis & Reporting Services
- Airspace & Airport Planning Support
- Animal Feeding Operations (AFO) Siting & Management
- Animal Inventory Management Support
- Animated Walkthrough & Flyby Design Services
- Aquatic Remote Sensing Services
- Archaeological Policies Studies Support
- Archaeological Site Conservation Support
- Archaeological Site Distributions Modeling
- Architectural Visualization Services
- Artificial Neural Network Applications Services

- Augmented Reality Support Services
- Automated Map/Chart Production Services
- Automated Mapping/Facilities Management
- Automated Vehicle Tracking Services
- Avalanche Warning Services
- Aviation Weather Nowcasting & Forecasting
- Bathymetric Charting Services
- Benthic or Deep Sea Ecology Studies
- Biodiversity Gap Analysis
- Biological Community Assessments
- Biological Impacts & Ecological Risk Modeling
- Biomass, Biofuels & Waste Energy Applic. Studies
- Bird’s Eye (Axiometric) View Support Services
- Business-Domain Expert (BDE) Consulting
- Cadastral Mapping Services
- CADD Integrated Facilities Design Services
- Cartographic Services
- Change Detection Analysis
- City Guide Support Services
- Climate Analysis/Reporting
- Close Range Photogrammetric Services
- Coastal & Littoral Zone Management
- Coastal Habitats Studies
Jobs, tasks, and professions using GIS, p.2

- Coastal Monitoring Services
- Cogeneration Energy Applications Studies
- Collaborative Spatial Decision Support
- Community Network Support
- Community Outreach & Case Mgmt. Support
- Comparable Sales Analysis
- Competitive Intelligence Support
- Competitor Analysis
- Computer-Aided Dispatch Support
- Consumer Spending Analysis
- Corridor Mapping Services
- Crime Pattern Analysis
- Crop Inventory Management Support
- Crop Scouting Support Services
- Crop/Soil Spatial Analysis
- Cultural & Archaeological Tourism Support
- Cultural Landscape Analysis
- Cultural Preservation Studies
- Cultural Resources Management Support
- Customer Acquisition & Retention Support
- Customer Base Determination Studies
- Customer Buying Trend Analysis
- Customer Information Systems (CIS)
- Customer Profiling Services
- Customer Relationship Management (CRM)
- Customer Service Support
- Data Acquisitions & Systems Maintenance
- Data Collection & Analysis
- Data Conversion Services
- Data Vendor Services
- Datalogging Services
- Delivery/Service Route Planning
- Demand Forecasting Analysis
- Demographic Analysis
- Development Impact Assessments
- DGPS Reference Station Services (Int. Broadcast)
- DGPS Reference Station Services (Wide Area Augmentation Systems – WAAS)
- DGPS Reference Station Services (Wireless)
- Digital Airborne Topographic Imaging Systems
- Digital Terrain Modeling (DTM/DEM)
- Diorama & Scale Model Production Services
- Direct Mail Marketing Support
- Disaster Management/Damage Assessment
- Disaster Mitigation Studies
- Disaster Planning/Response Support
Jobs, tasks, and professions using GIS, p.3

- Distance Education Support
- Document Management Systems Support
- Drive-time Analysis/Modeling
- Drought Measurement & Forecasting Services
- Dust & Hail Storm Warning Services
- Dynamic Event Modeling
- E911 Dispatch Support
- Earthquake & Tsunami Warning Services
- Eco-Tourism Support
- Economic Base Analysis
- Economic Development Studies
- Education Administration Support
- Ekistics Studies
- Election Campaign Management Support
- Electronic Atlas Publishing
- Embedded Spatial Applications (ASIC) Services
- Emergency Response Management Support
- Employee Ridesharing Support
- Engineering Network Analysis
- Enterprise Resource Planning (ERP)
- Enterprise Spatial Application Integration (ESAI)
- Environmental Impact Studies
- Environmental Monitoring & Protection Support
- Environmental Remediation Support
- Environmental Risk Assessment
- Epidemiological Research Support
- Expert Systems Integration Services
- Exploratory Cartographic Visualization Research
- Exploratory Spatial Data Analysis (ESDA)
- Facility & Asset Management
- Facility Mix Analysis
- Facility Model analysis/Planning Support
- Facility Performance Modeling
- Feasibility Studies Support
- Field Automation Support Services
- Financial Analysis Support
- Fire Growth Modeling
- Fire Insurance Risk Analysis
- Fleet & Logistics Management Support
- Flooding & Mudslide Monitoring & Forecasting
- Forest Fire Tracking & Forecasting Services
- Forest Preservation & Harvesting Support
- Freedom of information (FOIA) Initiatives
- Geo-indexed Statistical Reporting Services
- Geo-Targeted Marketing Services
- Geodata Collection & Production Services
Jobs, tasks, and professions using GIS, p.4

- Geographic Information Systems (GIS) Services
- Geographic Risk Analysis Services
- Geography Education (K-12) Support Services
- Geologic Surveys & Analysis Services
- Geospatial Data Modeling (Entity-Relationship-ER)
- Geospatial Domain Modeling (Unified Modeling Language-UML)
- Geospatial Independent Software Vendor
- Geospatial Project Management
- Geospatial Services Marketing Support
- Geospatial Services Pattern Language Initiatives
- Geothermal Energy Applications Studies
- GIS Applications Programming Services
- Global Change Research Studies
- Government (Public Administration) Market Visualization Support
- GPS Integration Services
- Ground Control/Truth Services
- Ground Penetrating Sensing Services
- Harbors, Jetties & Piers Planning & Maint Support
- Hardware Sales, Integration & Maint Services
- Hazard Management & Emer.Planning Studies
- Hazardous Materials Management Support
- Health Care Planning & Delivery Support
- Heat Recovery Applications Studies
- Heritage Management & Historic Preserv. Support
- Highway Maintenance Support
- Housing Search Services
- Human Resources Management Support
- Hurricane & Tornado Warning & Alert Services
- Hydro-Electric Power Studies
- Hydrodynamic Modeling
- Hydrographic Survey Services
- Ice Charting Services
- Ice Storm Monitoring & Forecasting Services
- Inertial Survey Services
- Information Architecture Design Support
- Infrastructure Management Support
- Insurance Risk Analysis
- Integrated Forestry Database (IFDB) Management
- Integrated Hydrographic Survey Systems
- Integrated Maritime Surveillance
- Integrated Marketing Segmentation System
- Integrated Pest Management Studies
- Integrated Waste Management (IWM) Systems
- Intelligent Route Planning Services
• Intelligent Transportation Systems (ITS)
• Intelligent Vehicle Highway Systems (IVHS)
• Interactive Dynamic Event Modeling
• Interactive (3D) Dynamic Event Modeling Services
• Interactive (Plan View) Dynamic Event Modeling
• Interactive Decision Mapping Services
• Internet Geographic White & Yellow Pages
• Internet Map & Information Services
• Internet Multi-player Gaming Support
• Internet Spatial Marketplace Services
• Intranet Map & Information Services
• Isochronic Mapping Services
• Isothermal Contour Mapping Services
• Knowledge Management Services
• Land Information Systems (LIS)
• Land Irrigability Mapping
• Land Ownership Tracking Services
• Land Use Analysis
• Land Valuation/Tax Management Support
• Landscape Design Services
• Lifestyle Clustering Analysis
• Lifestyle Resources Mapping Services
• Lightning Strike Analysis
• Litigation/Forensic Support Services
• Location Based Data Management
• Locational Quotient Analysis
• Location Scouting Services (Film & Video)
• Location Services
• Location-Allocation Modeling
• Location-Based Billing Support Services
• Location-based Mobile Game Support Services
• Locks & Canals Management Support
• m-Commerce Support Services
• Map & Chart Publishing
• Map Accuracy Assessment Studies
• Map Animation Services
• Map Digitizing/Scanning Services
• Marine Buoys Support & Maintenance Support
• Marine Navigation & Pilotage Support
• Marine Remote Sensing Services
• Marine Weather, Wind/Current Nowcasting & Forecasting Services
• Market Optimization Analysis
• Market Research & Segmentation Services
• Market Selection Analysis
• Market Survey Analysis
Jobs, tasks, and professions using GIS, p.6

- Market Visualization Support
- Marketing Automation Support
- Mass Transit Management Support
- Master Community Planning
- Media Planning Support
- Mortgage Lending Pattern Analysis
- Multimedia Map Design Services
- Natural Resource Damage Assessment
- Natural Resource Extraction Support
- Network Modeling
- Nautical Charting Services
- Ocean Dumping Detection Services
- Oil Spill Impact & Risk Assessment Modeling
- Oil Spill Monitoring Services
- Oil Spills Response & Contingency Planning
- Online Spatial Services
- Open Source Initiatives Support
- Open Standards Initiatives Support
- Operations & Maintenance Applications Services
- Orthographic Mapping Services
- Outdoor Advertisement Placement Support
- Panoramic Photographic Services
- Parking Lot Management Support
- Permit Application Management Support
- Personal Navigation Services
- Petroleum Distribution Management Support
- Petroleum Finding/Drilling Support
- Petroleum Price Tracking Research
- Petroleum Well Management Support
- Photogrammetric Services
- Photovoltaics Applications Studies
- Physiographic Mapping Services
- Pipeline Information Systems (PIS)
- Planimetric Mapping Services
- Political Boundary Analysis/Redistricting
- Population Studies
- Precision Farming Support
- Prescription Mapping Services
- Private Land Use Planning
- Product Sales & Distribution Analysis
- Productivity/Yield Analysis
- Professional Engineering Services
- Professional Survey Mapping Services
- Promotion Testing Support
- Property Inventory Analysis
- Property Valuation Services
Jobs, tasks, and professions using GIS, p.7

- Public Event Management Support Services
- Public Transit Operations Management
- Real Estate Acquisitions Support
- Real Estate Appraisal Services
- Real Estate Atlas Publishing
- Real Estate Listings Management
- Real Estate Locator Services
- Real Estate Management Support
- Real Estate Market Modeling
- Real Time Tidal Atlas Services
- Real-time Vehicle Tracking
- Red Tide Mapping Studies
- Regional Planning Analysis
- Regional Transportation Planning
- Regulatory Analysis & Reporting
- Regulatory Compliance Support
- Remote Collaboration Support
- Resource Allocation Analysis
- Response Time Analysis
- Retail Competitive Analysis
- Retail Drive Time Analysis
- Retail Predictive Modeling
- Retail Product Placement Analysis
- Retail Site Selection Support
- Retail Trade Area Analysis
- Risk Management & Analysis
- River Crest Forecasting & Flood Assessment Road Map Publishing Services
- Route/Delivery Support
- Rural Studies & Design Services
- Sales Force Automation (SFA) Support
- Sales Ratio Studies
- Sales Territory Analysis
- Satellite Radar Imaging Services
- Satellite Remote Sensing/Image Analysis
- Satellite-based Fisheries monitoring
- Scientific Data Publishing Services
- Seafloor Classification Studies
- Search & Rescue Support
- Sensor Monitoring Support
- Service Provider Trade Area Analysis
- Site Design Services
- Site Evaluation & Modeling
- Site Location Planning
- Site Selection Strategic Support
- Site-Specific Agriculture Support Services
• Site-Specific Nowcasting & Forecasting Weather
• Social Policy Analysis
• Social Sector Organization Membership Management Support
• Social Sector Pro Bono Spatial Services
• Soil Series Mapping Services
• Solar Thermal Applications Studies
• Space Inventory Allocation Support
• Spatial Application Usability Testing Services
• Spatial Applications Content Provider
• Spatial Behavior Data Mining
• Spatial Cognition Research Studies
• Spatial Content Provider Services
• Spatial Data Analysis Services
• Spatial Database Management Services
• Spatial Decision Support Systems (SDSS)
• Spatial Modeling & Simulation
• Store Optimization Analysis
• Strategic Loan Planning Support
• Strategic Planning & Marketing Implementation
• Street & Highway Construction Management
• Target Marketing Services
• Teaching/Training Support

• Technical Writing & Documentation Services
• Tele-Presence Support
• Telecommunication Infrastructure Management
• Thermal Monitoring Studies
• Time Series Mapping Studies
• Title Insurance Support Services
• Toxic Plume Forecasting
• Trade Area Definition/Evaluation
• Traffic Management Support
• Traffic Route & Flow Optimization Analysis
• Transportation Network Modeling
• Transportation Planning & Research
• Traveler Information System Support
• Tree Height and Stand Density Studies
• Trouble/Outage Management Support
• Urban Crisis Management Support
• Urban Studies & Design Services
• Utilities Planning & Research Services
• Vacant Land Studies
• Vegetation Vigor Classification Studies
• Vehicle Tracking Services
• Video Logging Support Services
• Virtual Reality Modeling Services (realistic)
Jobs, tasks, and professions using GIS, p.9

- Visual Impact & Landform Analysis (Viewshed)
- Volcano Monitoring Services
- Volumetric Modeling Services
- Voyage Risk Assessment Support
- Wastewater/Stormwater Systems Hydraulic Modeling
- Water Distribution Systems Management Support
- Water Quality Assessment Services
- Water Quality/Pollutant Transport Studies
- Wave & Tidal Energy Applications Studies
- Web-based GIS Services
- Wetlands Classification Studies
- Wildfire Ecology Studies
- Wildlife Habitat Suitability Studies
- Wildlife Tracking Studies
- Wind Energy Applications Studies
- Wind Farm Development Support
- Wireless Cell Locations Siting/Modeling
- Wireless Location-Based Services (LBS)
- Work Management Support
- Zoological Research and Analysis

…and the list goes on.
...and including the Office of Governor and similar senior executive posts

GIS in Education: More than a Map—Discovery Learning, Decision Support

Jim Geringer
- ESRI Director of Policy and Public Sector Strategies
- Gov of Wyoming, 1995-2003
- Wyoming Legislator, 1983-1994
- Farmer
- Engineer