

About Booz Allen

Booz Allen Hamilton is a leading provider of management and technology consulting services to the US government in defense, intelligence, and civil markets, and to major corporations, institutions, and not-for-profit organizations. Booz Allen is headquartered in McLean, Virginia, employs more than 25,000 people, and had revenue of \$5.59 billion for the 12 months ended March 31, 2011. (NYSE: BAH)

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Human Geography Toolkit

Generating Sociocultural Data from Imagery

Finding usable data is often the most time-consuming step in any intelligence analysis project, especially in the realm of human geography (HG) analysis. In areas where there is conflict or instability, HG data is often scarce or unavailable. As a result, extraordinary resources are consumed locating and spatially enabling reliable sociocultural and socioeconomic information for geospatial viewing. Generating this new, place-based cultural data—where and when it is needed most—is one of the greatest challenges in beginning a human geography analysis.

Booz Allen Can Help You Be Ready for What's Next

Booz Allen Hamilton, a leading strategy and technology consulting firm, can help analysts quickly create reliable baseline HG data using familiar image processing and geographic information system (GIS) software via the Human Geography Toolkit. At Booz Allen, we believe that analytic success will be enhanced by the rapid fusion of GIS and remote-sensing data sources. An analyst's initial efforts should be exploratory—looking for key spatial and temporal correlations of basic sociocultural attributes in an area of interest (AOI). With current methods, analysts can spend months assembling this new type of data. Booz Allen's solution is to generate relevant geographic layers (e.g., population location and settlement growth, areas of affluence or poverty, economic zones, transportation, hydrology, hypsography) directly from imagery and use these to quickly establish the foundation for sociocultural exploration. Our scientifically valid remote-sensing techniques are designed to explore the human impact on the environment. These proven techniques allow geospatial intelligence (GEOINT) analysts to approximate the location and the extent of many human geography attributes.

Our Services and Approach

The Human Geography Toolkit is based on the integration (bridge) between ITT Visual Information Solutions' ENVI® and Esri's ArcGIS™ software—tools available to all National Geospatial-Intelligence Agency (NGA) analysts. Using lessons learned from years of human geography data development, Booz Allen has identified sociocultural attributes that can be portrayed from imagery. We use ENVI's spectral, texture, and image analysis power to

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delivering results that endure

differentiate these attributes within the image scene and then use the familiar GIS capture and modeling interface to further investigate. By incorporating a remote-sensing approach, our experts help GEOINT analysts quickly create HG data layers directly from imagery that can then be used for initial exploration and analysis. Our approach is an easy-to-use, effective way of beginning a human geography effort. It is also a practical application for promoting further integration of NGA's analytical tradecrafts across imagery analysis, geospatial analysis, and image science. As analysts discover useful HG parameters in the imagery, the data can be exposed through the toolkit. This allows other analysts to capitalize on successful methods.

Analysts can use the Human Geography Toolkit to exploit imagery and quickly visualize and assess the following attributes:

- Where are the settlements in an AOI? How large are they? What are the boundaries? What is the built-up density of each settlement?
- How have settlements expanded over time? Which sections are growing and in what direction?
- Where are the areas of affluence? Where are the pockets of poverty?
- Do settlement boundaries cross into areas of environmental risk (e.g., steep slopes, flood zones)? How does the climate impact the AOI?
- Where are industrial versus residential zones? What does the landscape and infrastructure tell us about livelihood or economic levels?
- How can we characterize the transportation infrastructure (e.g., road surface type, intersection densities) and develop cost or friction surfaces for advanced network analysis?

The availability of predefined human geography data layers from imagery allows analysts to quickly explore sociocultural and socioeconomic conditions in an AOI. Analysts then use this information to discover and visualize broad spatial and temporal patterns. These patterns provide analysts with a valuable initial human geography foundation that moves more rapidly into analytic activities. The imagery-derived layers generated by the Human Geography Toolkit are a rich supplement to existing government products that will enable even more robust GEOINT analysis.

Whether you're managing today's issues or looking beyond the horizon, count on us to help you be ready for what's next.