BCG

Putting the U.S. Geospatial Services Industry On the Map

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THE BOSTON CONSULTING GROUP

Definition of geospatial services and the focus of this economic study

Geospatial services

Allow consumers, businesses, governments, and other organizations to make decisions based on geographic data

- The primary ingredients of geospatial services are electronic maps and satellite imagery describing our physical and human environment

Geospatial services industry

Group of companies and organizations providing the tools and technologies for end users to benefit from location-based information.

- There are three primary types of users of geospatial services: businesses, consumers, and government and non-government organizations

The main focus of this study, which was commissioned by Google, is three-fold:

1. **Assess the size**: Tally the jobs and revenues of the U.S. geospatial services sector
2. **Trace the impact**: Establish the benefits that U.S. businesses and consumers derive from this new industry sector
3. **Identify trends**: Highlight the evolution of this new sector, including interdependencies with public policy and both private and public investment

Main study findings: The impact of geospatial services on the U.S. economy is 15x-20x the size of the geospatial industry

The U.S. geospatial industry generated approximately $73B in revenues in 2011 and comprises at least 500,000 high-wage jobs

- The industry is composed of geo-data providers, location-enabled device manufacturers, geo-app developers, and a growing network of geospatial experts and educators
- By employees, this is roughly equivalent to the airline industry; by revenues it is approximately $10B more than the U.S. paper industry

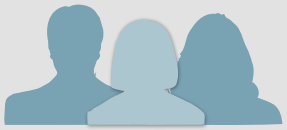
More importantly, geospatial services deliver efficiency gains in the rest of the U.S. economy that are valued at many times the size of the sector itself, creating a lasting source of competitive advantage for the U.S.

- Geospatial services drive $1.6T in revenue and $1.4T of cost savings, representing 15 to 20 times the size of the geospatial services industry itself
- Geospatial services are used on a daily basis by roughly 5.3M U.S. workers today (over 4% of the U.S. workforce)

In addition, U.S. consumers place a direct value on geospatial services at $37B annually—a recognition of the many ways geo-applications and location-enabled devices are central to our daily lives

The U.S. geospatial services industry is composed of three primary sectors

The **geospatial services industry** provides the tools, technologies, and services for consumers, businesses, governments, and other organizations to use location-based information

		Total	
		Revenues ($B)	Jobs (K)
Geo-expert industries 	• Turns location-based information into insights for commercial and government organizations • Trains and educates geospatial professionals	2.6	125
Geo-applications & devices 	• Develops and manufactures devices and software for creating, visualizing, sharing, and analyzing geographic information	54	175
Location-based geo-data 	• Collects, manages, and distributes spatial information and imagery • Provides navigational aides and other location-finding services	17	200
		$72.8B	**500K**

1. Revenue estimate is for 2011 and includes on commercial sectors, while jobs total includes both commercial and non-commercial (government) positions.
Source: BCG analysis

Consumers are big beneficiaries of geospatial services

Consumers rely on geospatial services primarily for direction-finding and searching for local businesses

Maps and navigation

Moving from place to place in the most optimal way creates efficiencies in every-day life

Example:

- Vacationers navigate to interesting sightseeing locations using a tourism smartphone app
- Business people find their way to hotels in unknown places while travelling for work

Local business search

Locating businesses nearby can improve decision making for citizens and drive sales at stores

Example:

- Citizens find new places to eat after searching for recommendations on Yelp!

Businesses rely heavily on geospatial services for both planning and operations

Businesses rely on geospatial services to create new efficiencies in their core operations, find ways to better target their customers, create leaner operations, and make smarter strategic decisions

Logistics & operations


Optimizing transportation, warehousing, facilities management, and operations

Example:

- Transportation company increasing utilization rates and load-factors of truck fleet
- Manufacturer minimizing supply-chain costs and efficiently managing inventory

Sales & marketing


Targeting of customers based on location to increase sales and marketing yields and reduce costs

Example:

- Chain retailer designing an app that lets customers locate nearest storefront
- Salespeople dividing territories to balance potential and create an equitable sales plan

Strategic decision making


Leveraging geo-data to drive core business decisions to most effectively deploy resources

Example:

- Agribusiness company determining optimum fertilizer application from the air
- Retailer choosing the next set of store sites based on where its target customers live

BCGs U.S.-wide survey of business leaders identified more than $1T in perceived value for geospatial services

Geospatial services user-base

Businesses	Consumers	Government
Logistics and operations	Maps and directions	Basic services and administration
Sales and marketing	Local business search	Resource management
Strategic decision making	Local weather, social media, etc.	Defense

Focus of study on commercial sector and consumers

Estimated impact of geospatial services

$1.6T of revenue heavily influenced
- U.S. company revenues that are influenced by geospatial services

$1.4T of cost savings attributed
- U.S. company cost savings that are attributed to use of geo-services

5.3M jobs rely on geospatial services
- Number of U.S. employees who use geospatial services to do their jobs

$37B consumer value created
- The price U.S. consumers are willing to pay for access to geo-services

Out of scope

Survey highlights: Powerful qualitative evidence for the importance of geospatial services

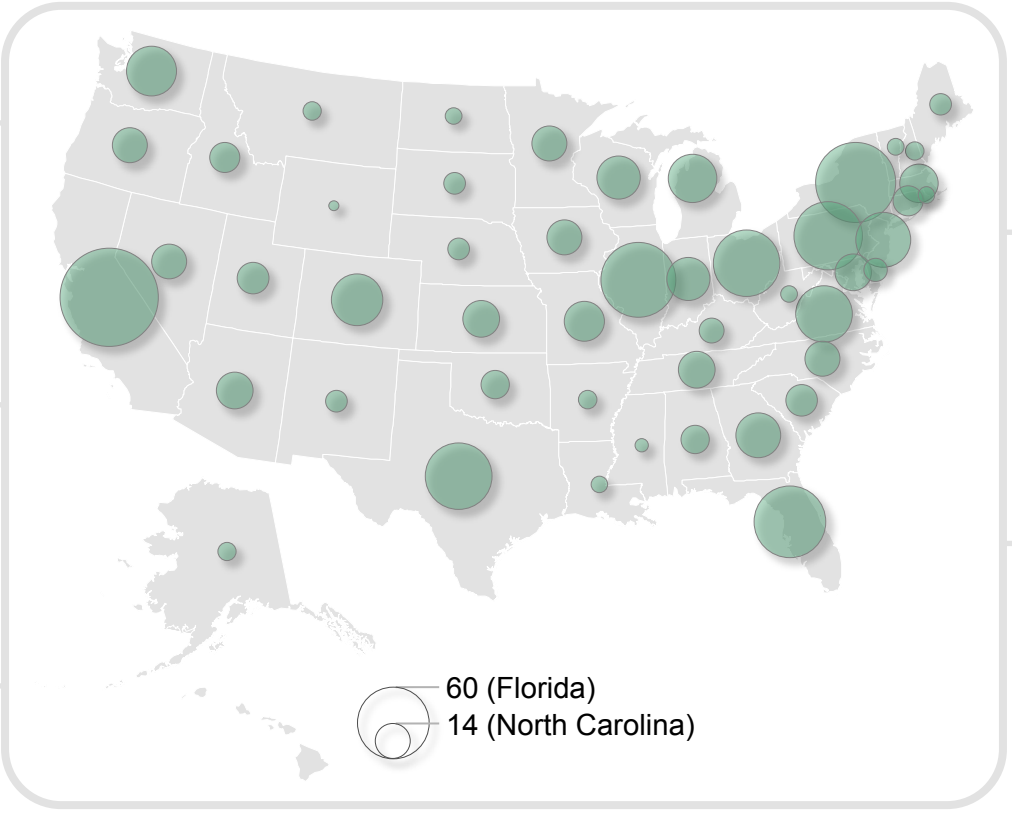
Of the 1,000 business leaders surveyed from every U.S. industry and geography

Distribution of U.S. survey respondents

51%
Use web-based mapping services in their business

40%
Believe geo-services is an important component of American competitive advantage

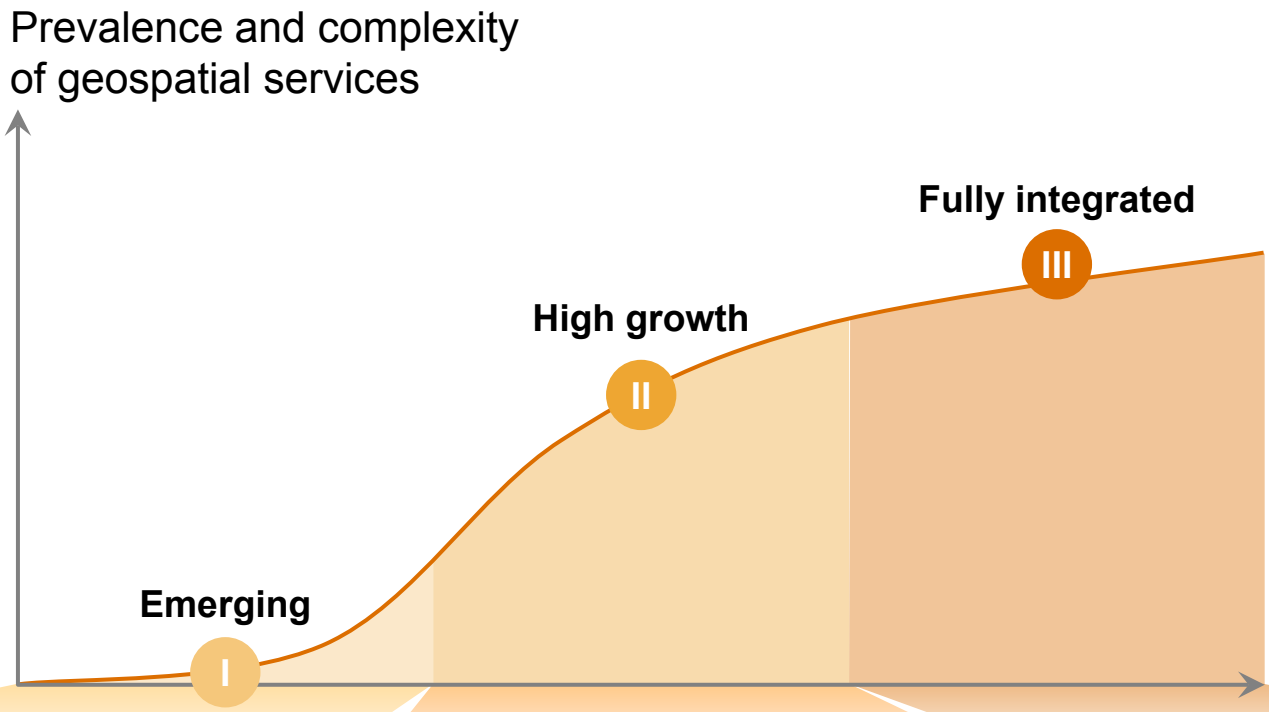
36%
Use geo-enabled devices in business operations



32%
Say local search plays a role in attracting customers

19%
Believe government support for open exchange of geospatial information is driving the efficiency of American business

BCG believes that geospatial services in the U.S. are in a high-growth phase, headed toward market maturity



- Main customers are defense, regional governments, and large enterprises
- Geospatial services are expensive, data availability is poor, access points rare
- Uptake by small and medium-sized businesses and direct to consumer very limited

- Commercial satellite imagery and open GPS signals create surge in spatial data
- Location-aware mobile devices create an explosion of users and use-cases
- Rapid adoption in business drives competitive advantage among firms

- Geospatial services are seamlessly integrated into core business processes of both large and moderate-sized firms
- Citizens, consumers, and workers consider geospatial services an essential part of every-day life

Anticipated future development

Source: BCG research

BCGs findings indicate that a strong U.S. geospatial services industry requires continued support on several fronts

Key success factor	Issue	Policy highlights
Government investment and policy support of geo-data collection	• Satellites feed the rest of the industry with map and location data • Government support for these collection efforts is significant	• Gaps are opening up in the global earth monitoring network • Vigilance is required to protect GPS spectra and other core investments
Clear open data policies and effective geo-infrastructure	• Open data policies allow investments to flow to users • Geospatial data needs to have a common structure to be shared	• International and regional groups are making progress in building the case for common standards[1]
Strong support for geospatial education, training, and innovation	• U.S. anticipates talent shortfalls in many of the core geospatial professions over the next 5 to 10 yrs • Education efforts and improved awareness are key to closing the gap	• Efforts are underway to elevate the profile of the geospatial profession, including links to U.S. math and science agenda

1. Examples of organizations working in this space include the UN Committee of Experts on Global Geospatial Information Management (GGIM), the Global Spatial Data Infrastructure Association (GSDI), the U.S. Federal Geographic Data Committee (FGDC), and the EU Spatial Data Infrastructure Network (eSDI-NET)

Methodology

Methodology overview

We sized the U.S. geospatial services industry (jobs, revenue)

Expert scan: Conducted dozens of expert interviews both inside and outside BCG to understand the structure and dynamics of the industry

Bottom up: Canvassed several global and U.S.-scale firmographics databases to build a bottom-up view of revenues and jobs, leveraging custom taxonomy

Top down: Identified several high-importance industry subsectors and conducted top-down estimates of revenues and jobs

and we estimated the wider impact of the industry (revenue, costs)

BCG designed and fielded a U.S.-wide survey to assess wider impacts

- 1,000 business managers at a wide range of seniority-levels
- Spanning all U.S. industries and geographies
- Even split between "enterprise-level" firms (500 or more employees) and small and medium-sized businesses

Detailed survey instrument including multiple, independent measures