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# CREATING AND MAINTAINING A LIVING DIGITAL INVENTORY OF OUR PLANET

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**THEME: Geospatial Information Analysis in Digital Earth**

**KEY WORDS:** Geospatial Big Data, machine learning, crowdsourcing, cloud service, geospatial intelligence

**ABSTRACT:**

Every day DigitalGlobe collects over 4,000,000 square kilometers of high resolution imagery complete with multi or super-spectral information. This creates immense opportunities not only to see the globe but to understand it. Extracting actionable geospatial intelligence from these raw and complex streams of data is an enormous challenge. Geospatial Big Data (GBD) converts millions of square kilometres of imagery to structured information that can be queried, indexed, and leveraged to provide deeper insight and understanding. Big data problems often can be characterized by four challenges: volume, velocity, variety and veracity. We meet these challenges by combining the scalability of machine learning with the accuracy of statistically weighted human crowdsourcing.
GBD can extract information layers like agricultural field boundaries, crop identity masks, crop health, crop maturity, forest type and acreage, mineral maps that are essential to long term resource management and planning. GBD supports a variety of business intelligence applications by counting and inventorying millions of non-persistent objects such as cars, truck, buses, containers, airplanes and helicopters. GBD provides situational awareness for humanitarian assistance and disaster response by quantify human presence, indexing and measuring millions of dwellings in remote parts of Africa, deducing population counts, monitoring urban sprawl, and detecting damaged, burned and flooded houses. By leveraging a truly global constellation and converting imagery to information that is searchable and indexable, we are enabling large scale correlations and analysis like never before.

Large scale feature extraction is just one component. The GBD environment is a combination of DigitalGlobe's analytic tools and imaging data in a scalable and secure cloud based service. We call this the GBD platform. The GBD platform provides the conditions necessary to support a complex partner ecosystem and answer tough, large scale geospatial industry problems.