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Response to NSF National Big Data R&D Initiative RFI

By Planet OS

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Company Background

Planet OS is a data discovery engine for sensor and machine data. Our mission is to index the real world - data on oceans, land, air and space coming from sensors and robotic devices. Offshore oil & gas companies and governments are able to implement Planet OS to index, discover and make sense of their growing sensor data using a hybrid cloud and on-premise approach. Planet OS contextualizes, visualizes, analyzes and fuses datasets, making the data universally accessible with external APIs.

Comments and Suggestions

What are the gaps that are not addressed in the National Big Data R&D Initiative Visions and Priority Actions document.

The Initiative should address societal and business needs next to policy needs. Unprecedented access to data is transforming individual and collective privacy concerns, opening up completely new venues for businesses. International agreements in cross-cutting concerns like individual privacy and use of data for profit, will ensure prosperity in a global competitive landscape.

From an interagency perspective, what do you think are the most high impact ideas at the frontiers of big data research and development?

Despite these technological advances and an accelerating trend in data volume, vast repositories of data are not readily accessible. Finding, formatting, aggregating and processing diverse types of information remains a significant challenge, in particular if the required data is distributed across multiple agencies. Federal Agencies have an opportunity to address this deficiency by utilizing Interagency Data as a Service, Software as a Service and Platform as a Service concepts. These service formulations are based on the idea that the product — data, software applications, or computing platforms — can be provided to the user on-demand, regardless of

geographic or organizational separation of provider and consumer, and without regard to the physical system on which the data, software, or computing reside.

What new research, education, and/or infrastructure investments do you think will be game-changing for the big data innovation ecosystem?

The key to big data innovation on the federal level is effectively indexing and distributing data for public and commercial use. Once the data is universally accessible, the scientific and private sectors can start creating added value by leveraging the cumulative value of multi-domain federal data that has not been reasonably accessible so far.

Accordingly the most critical component to foster innovation is making federal data products available at scale and in real-time, so the investments should focus on research and infrastructure that enables this. The highest goal would be an open platform that involves scalable cloud infrastructure, powerful programmable interfaces, interactive tools that streamline user experiences, automated data flows and an advanced database that complements federal core data acquisition systems.

How can the federal government most effectively enable new partnerships, particularly those that cross sectors or domains?

The government can ensure effectiveness by enabling private sector to develop and operate open data platforms, while keeping the data stewardship role within the agencies. As a strategic infrastructure, a big data grid should be operated by multiple vendors who are empowered and incentivized to ensure open access to infrastructure and data to third parties independently from the government. Government involvement should be focused on stewardship activities.

A short explanation of why you feel your contribution/ideas should be included in the strategic plan.

The Planet OS Global Open Data Initiative, Marinexplore.org, is a growing global partner network of 33 institutions offering fast access to a rich directory of well-organized environmental data from 43,000+ data streams. Planet OS as a company has amassed unique experience in developing and operating a global data initiative since July 2012. The company's experience in successfully operating the initiative with more than 7,500 participants is the foundation for the proposals put forth in this response to the RFI.