

Big Data: Issues, Privacy, and Opportunities



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Farm Data Privacy Not a New Idea

- Advent of GPS = farm data geo-coded
- Information Privacy, Confidentiality, and the Right to Know: A Growing Challenge for Workers in Agriculture and Natural Resource Management
 - November 1998
 - Arbor Day Farm, Nebraska City, Nebraska



Pertinent Questions

- ⦿ Not whether to share data with big corps
 - There really isn't a choice unless big changes
- ⦿ Question is how can I make the most of the situation
- ⦿ Who are my competitors and how can I outperform them?

May 2012

Monsanto to Buy Planting Technology Company

October 2013

Monsanto Buys Weather Big Data Company Climate Corporation For Around \$1.1B

DuPont Pioneer and John Deere Offer Next Level of Decision Services to Growers

DuPont Pioneer, John Deere offer near
real-time field level data
November, 2013

January 31, 2014

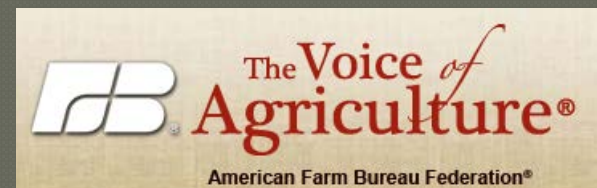
The Climate Corporation Makes Landmark Data Access and Privacy Commitments to Farmers

February 20, 2014

The Climate Corporation Announces Acquisition of Soil Analysis Business Line of Solum, Inc.

American Farm Bureau Federation

- **Do you own the data?**
- **How will the data be used** and what benefits will you receive from allowing a provider to include data in a database?
- Will you control management of the data?
- What is aggregated data and how can it protect the farmer?
- How can a farmer's "anonymized," or non-personal, data be traced back to the farm?
- Can you stop sharing data once you agreed to share?
- Who else might have access to the data, and can it be released to the public or a third party?
- **What is the value of data to the farmer and what is the value of the data to the company?**



Being Open

- ⦿ Government expected to be transparent
- ⦿ Expect medicine to be collaborative
- ⦿ Transparency has its downside
 - Environmental Working Group

Trust

- If 'Open' then trust not sign of incompetence
- 'Open' works due to 'reputation system'
- Simple in social networks
 - More difficult to value in corporate world
- **Accountability \neq trust**
 - does not enforce trust
 - remnant once trust has been lost

AgGateway

more accurate

better communication

fewer manhours

proven standards

faster transactions

real-time

<http://www.aggateway.org/>



Open Ag Data Alliance

The Open Ag Data Alliance is an open project designed to bring interoperability, security, and privacy to agricultural data.

<http://openag.io/>

Just how big is it?

big data

Search term

agriculture

Search term

oklahoma...

Search term

Geograp...

Field Of Study

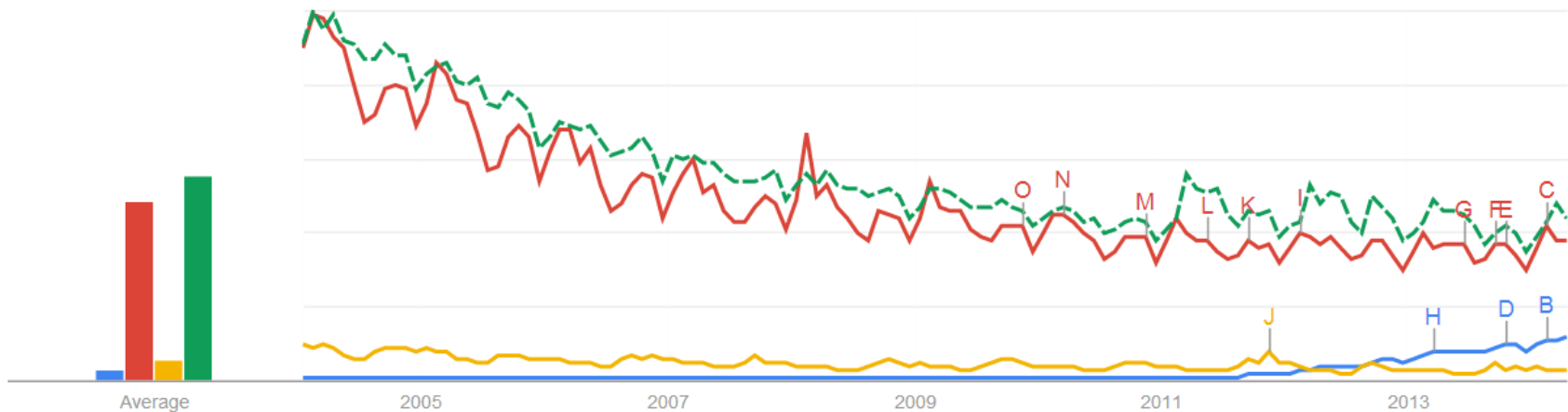
+Add term

Beta: Measuring search interest in *topics* is a beta feature which quickly provides accurate measurements of overall search interest. To measure search interest for a specific *query*, select the "search term" option. [?](#)

Share ▾

Interest over time [?](#)

News headlines Forecast [?](#)



Big Data is BIG

r-project
Search term

ag gis
Search term

climate c...
Search term

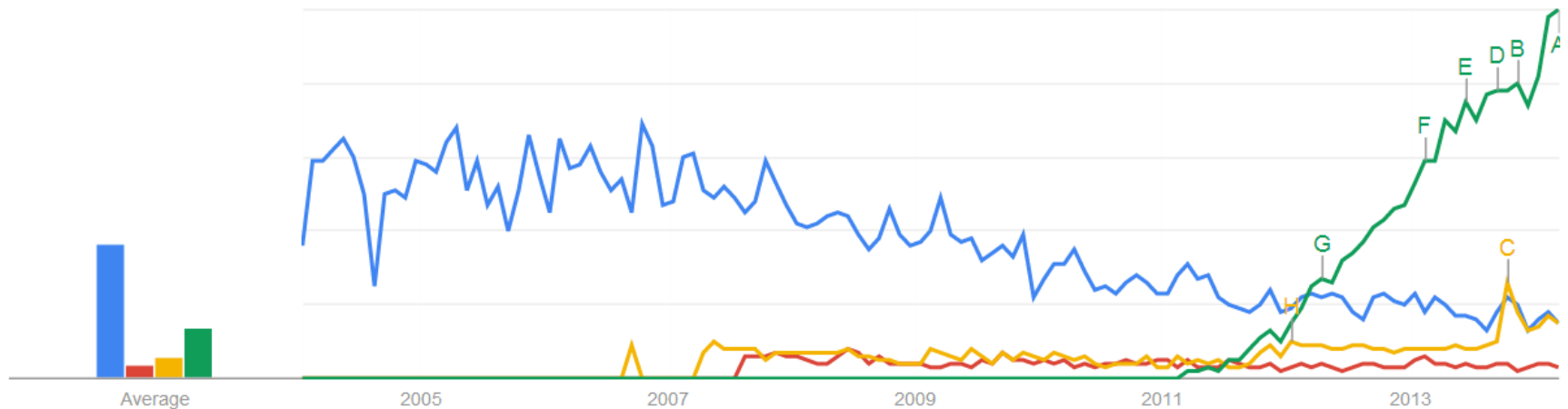
big data ...
Search term

+Add term

Share ▾

Interest over time ?

News headlines Forecast ?



What is Big Data?

- Lots of data

- N=all
- Complicated, complex, messy

- Data use, re-use, and exhaust

- Original intent of data isn't most value use of data

- Recombinant data

- Adding data layers from multiple sources
- Weather 'constant' across a field
- With aggregated data, weather becomes a variable

- Much, much more

[Google.org home](#)

[Dengue Trends](#)

Flu Trends

[Home](#)

United States

National

[Download data](#)

[How does this work?](#)

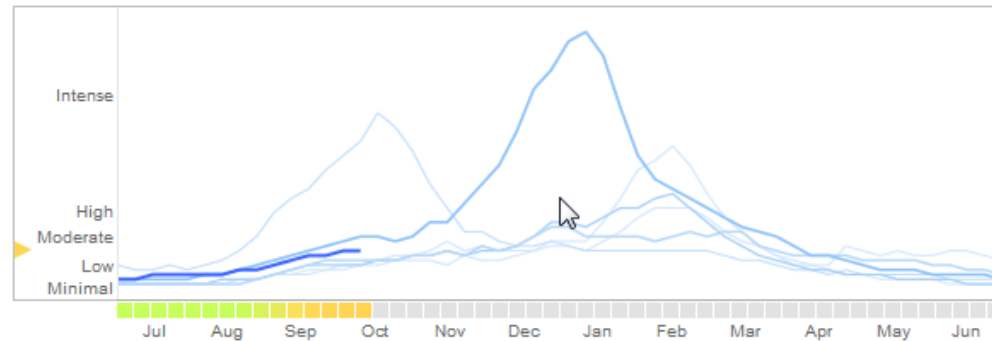
[FAQ](#)

Explore flu trends - United States

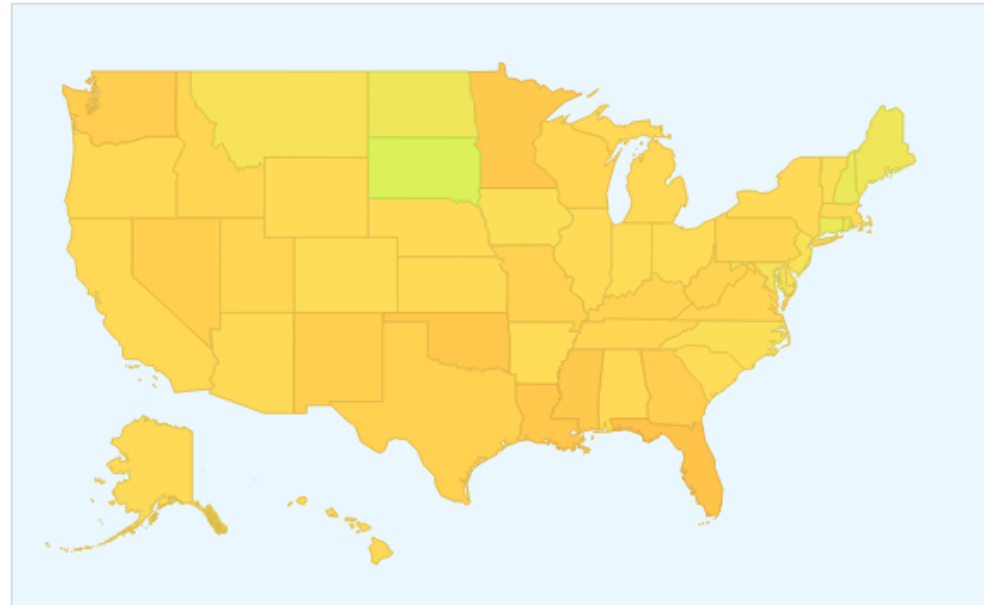
We've found that certain search terms are good indicators of flu activity. Google Flu Trends uses aggregated Google search data to estimate flu activity. [Learn more »](#)

National

● 2013-2014 ● Past years ▾



States | [Cities](#) (Experimental)



Estimates were made using a model that proved accurate when compared to historic official flu activity data. Data current through October 14, 2013.

Big Data in Corporate World

Internal decisions

- makes information transparent and usable

Marketing to customers

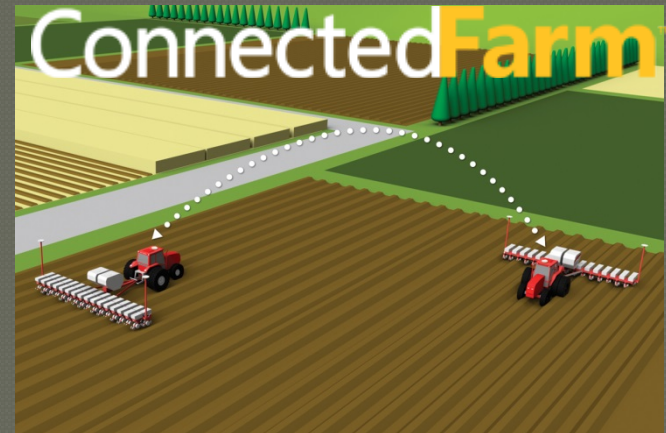
- allows narrow segmentation of customers
- customized products or services

Exacerbates strengths and weaknesses

- *those who Master it will remain*



Big, Small, and Startups



Privacy Policies

- The PR policy doesn't always equate to fine print answer
- Dealers do not represent corporate
- Fine print gives insight
 - Who 'owns' data and for how long
 - What can other parties do with data
 - If farmer loses access to data if unsubscribes
 - If terms of agreement are changeable at any time

Example Policy

- ⦿ <http://www.climate.com/principles>
- ⦿ **“The data created by a farmer, or generated from equipment the farmer owns or leases, is owned by that farmer and should be easily managed.”**

Everyday Life and Data Privacy

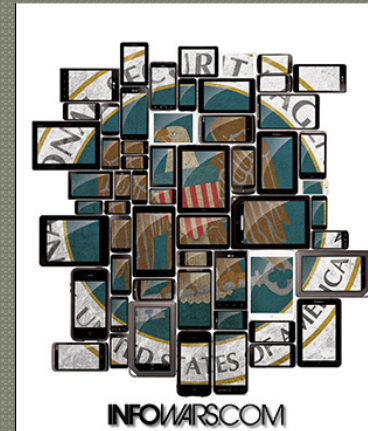


ARKANSAS AGAINST
common core

• poor content • no privacy • high costs



<http://farministrynews.com>

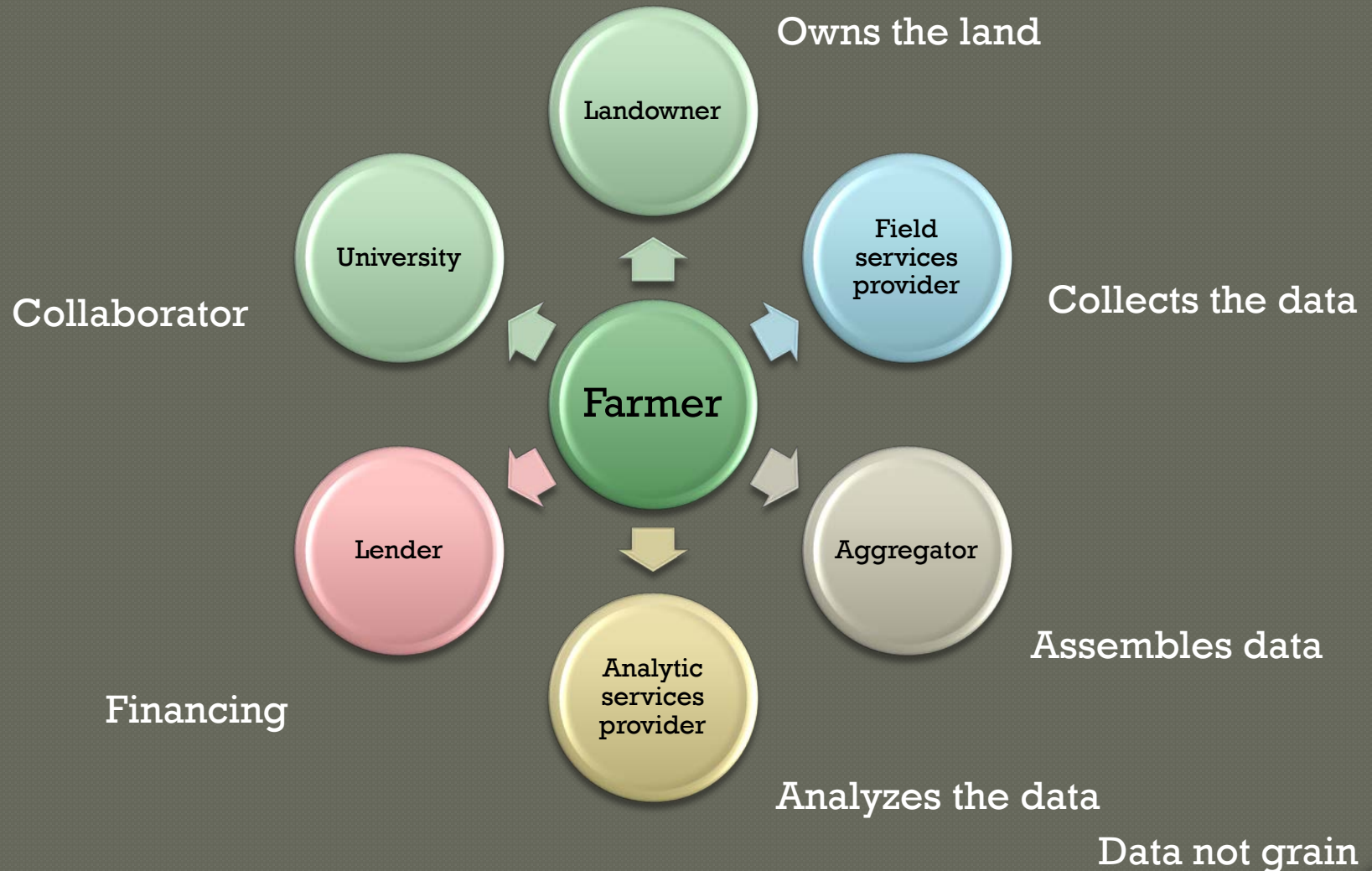


INFOWARS.COM

Ownership framework

- ◉ What does it mean to “own” something?
 - Right to POSSESS*
 - Right to USE
 - Right to ENJOY
 - Right to EXCLUDE OTHERS FROM*
 - Right to TRANSFER
 - Right to CONSUME or DESTROY*
- ◉ Better question: *What are the rights and responsibilities of the parties with respect to the data?*

Who has Ownership Rights? Access Rights?

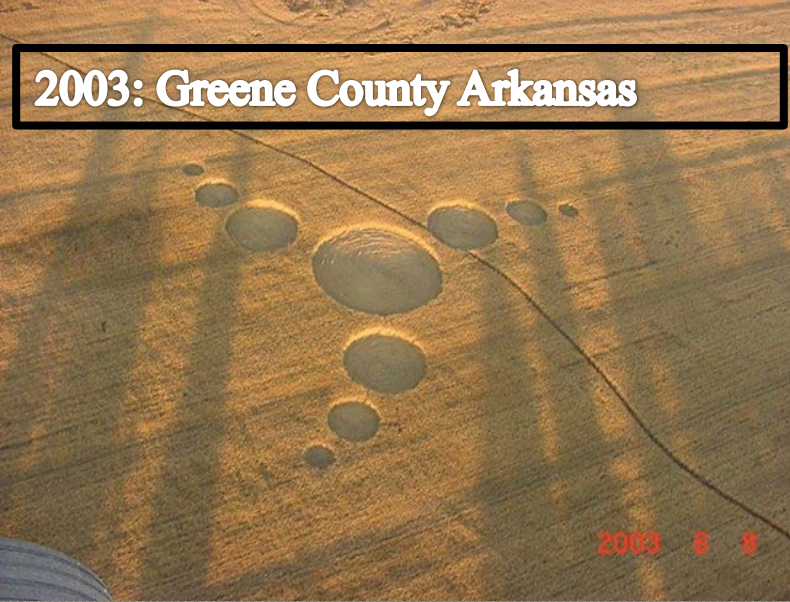


What to Expect in Agriculture

- Changes character of risk
 - Not an issue of 'if increase risk'
- Primary use of data not majority of value
 - Secondary uses and re-uses of data
- Privacy notices
 - 'notice and informed consent'
- Asymmetric information

The best use of technology?

2003: Greene County Arkansas



2004: Greene County Arkansas



2007: Greene County Arkansas



Photo Source: Unidentified



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