



Powering Holistic Data Review and Decision Making Using Visual Analytics

PhUSE

26-September-2014

We live in a world increasingly covered in data.

If the earth's surface is ~71% covered in water...

I wonder what percentage of our lives is covered in data?



An Ocean of Data



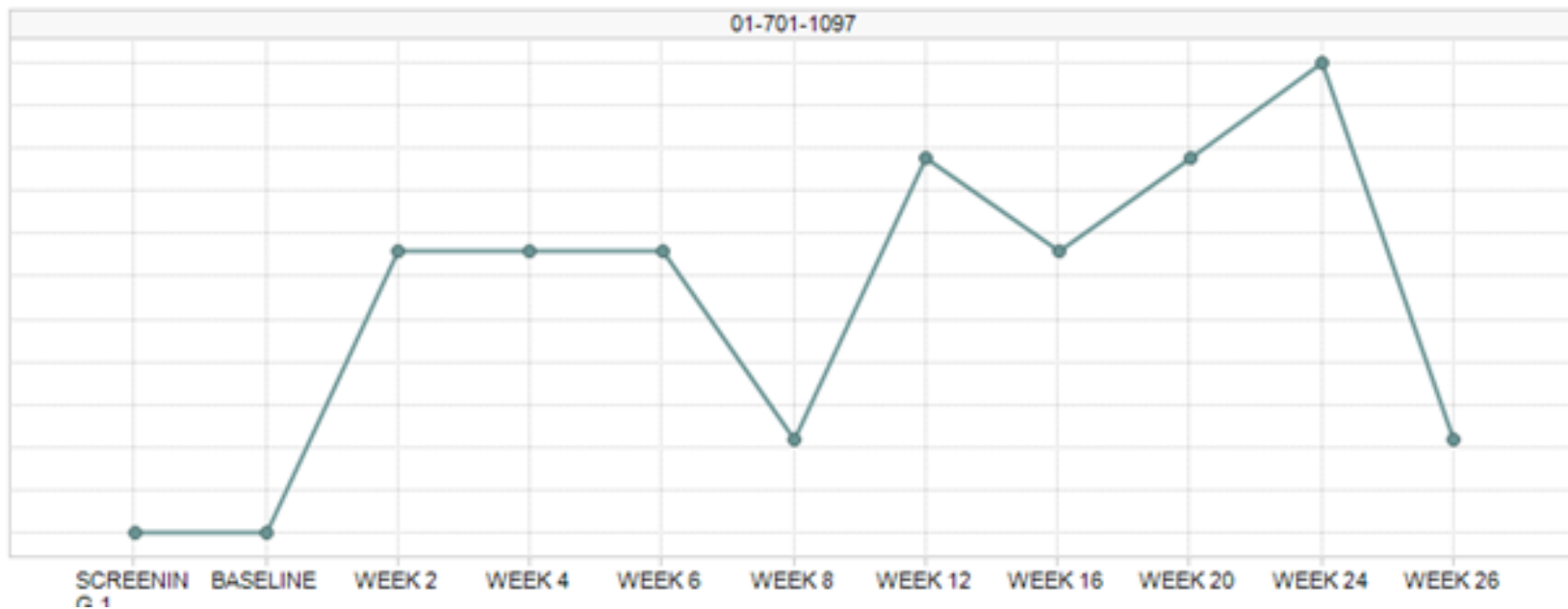


In not entirely useful formats....

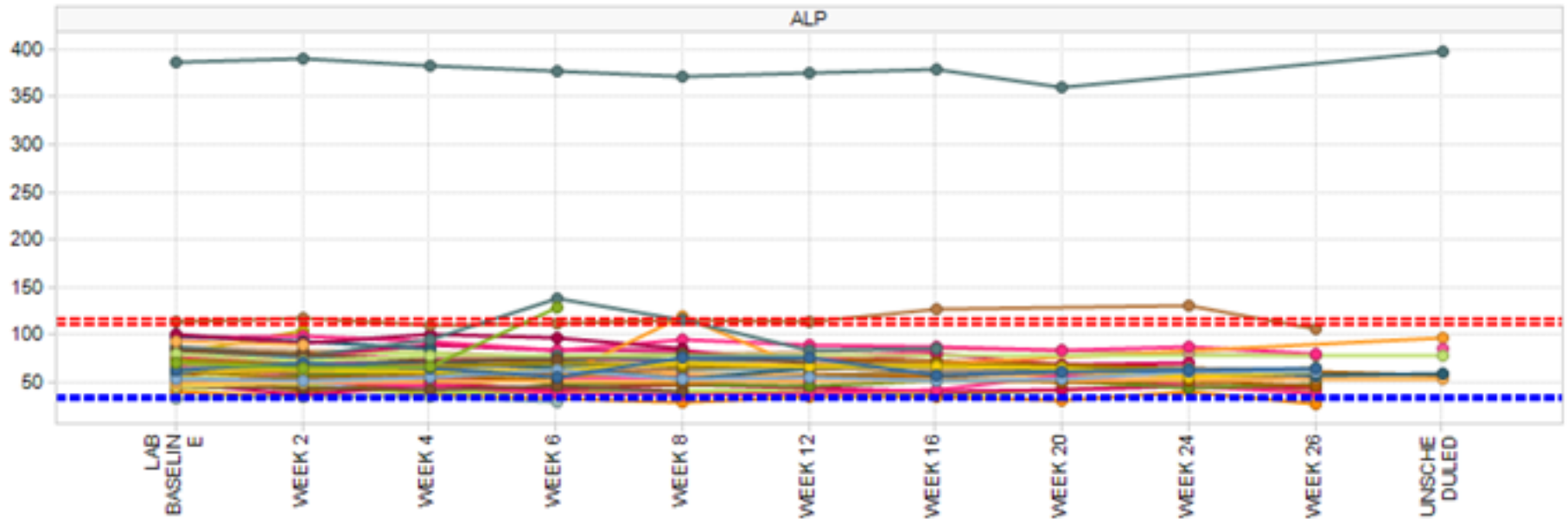
```
Activities Date Calories Burned Steps Distance Floors Minutes
Sedentary Minutes Lightly Active Minutes Fairly Active Minutes
Very Active Activity Calories Active Score 1/1/13 0 0 0 0 1,440 0
0 0 0 0 1/2/13 2,461 0 0 0 1,380 0 60 0 307 194 1/3/13 2,461 0 0
0 1,380 0 60 0 307 194 1/4/13 2,461 0 0 0 1,380 0 60 0 307 194
1/5/13 2,461 0 0 0 1,440 0 0 0 0 2 1/6/13 2,461 0 0 0 1,440 0 0 0
0 0 1/7/13 1,975 0 0 0 1,380 0 60 0 307 192 1/8/13 2,519 0 0 0
1,380 0 60 0 307 194 1/9/13 2,519 0 0 0 1,395 0 45 0 230 147
1/10/13 2,519 0 0 0 1,440 0 0 0 0 2 1/11/13 2,519 1,792 0.86 9
815 70 27 0 340 177 1/12/13 1,780 4,463 2.14 13 353 148 58 1 742
398
```

```
food_log_20130110 Meal Food Calories Lunch Barbecue Chicken Sub 310 Daily Totals Calories 310 Fat 6 g
Fiber 6 g Carbs 52 g Sodium 1,090 mg Protein 16 g Water 0 fl oz
```

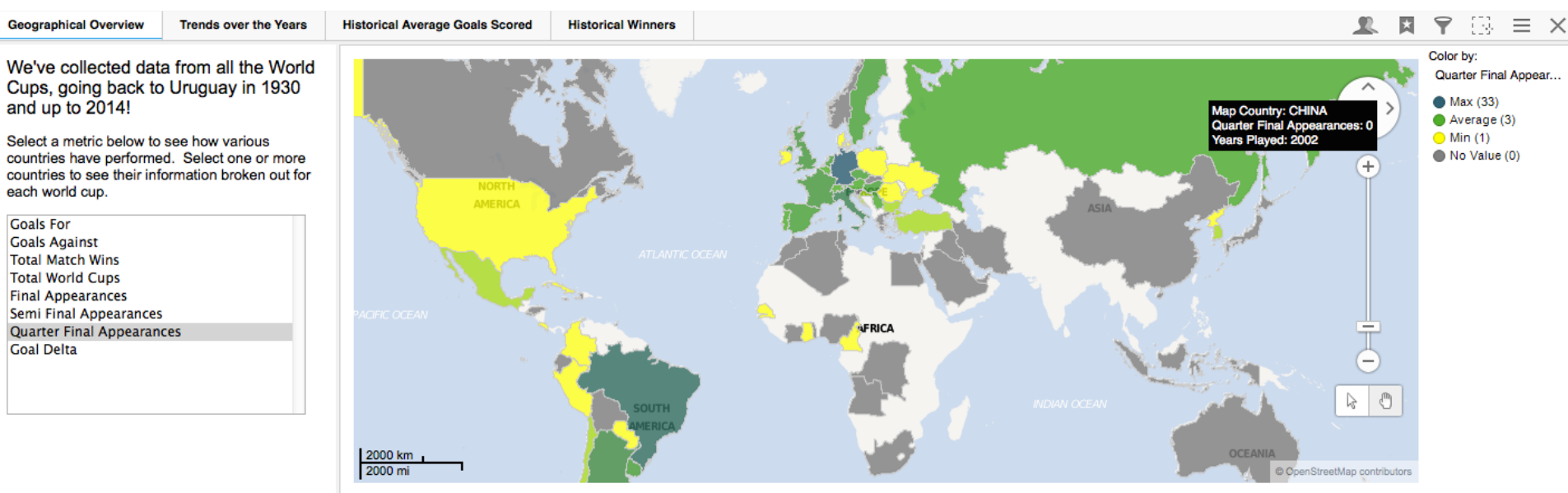
Making the data visual.. Makes all the difference



Making the data visual.. Makes all the difference



...Even our games....



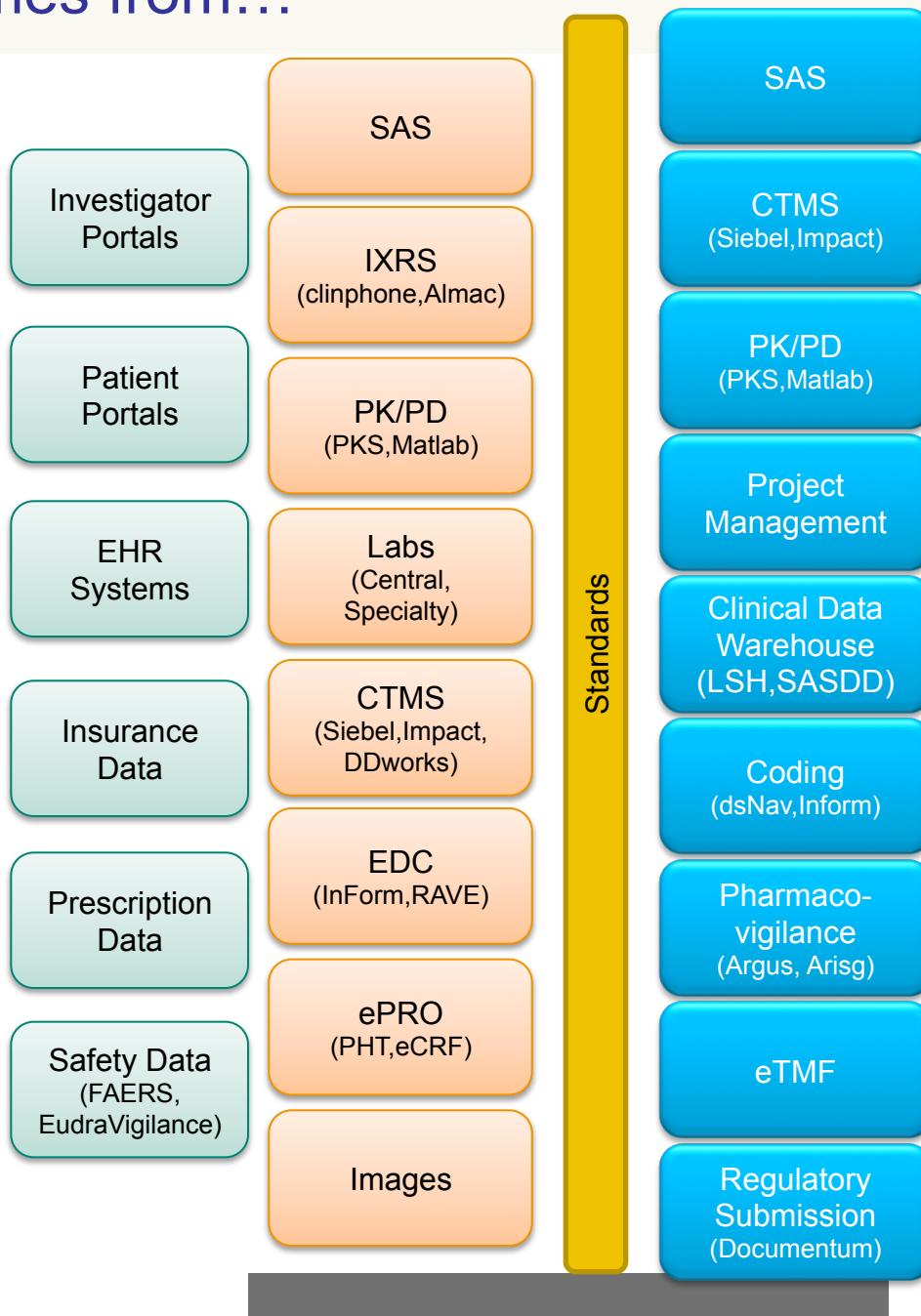
<http://spotfire.tibco.com/demos/spotfire-soccer-2014>

NFL players will wear RFID chips
this season to track their
movements

*The sensors will collect on-field
location data for deeper stats*

TheVerge
<http://www.theverge.com/2014/7/31/5957277/nfl-players-will-wear-rfid-chips-this-season-to-track-their-movements>

..Our data comes from...



And increasingly higher content data

NGS Variant

CNV

Gene Exp.

RNASeq

IHC / FISH

GWAS

ELISA

qPCR

Metabolomics

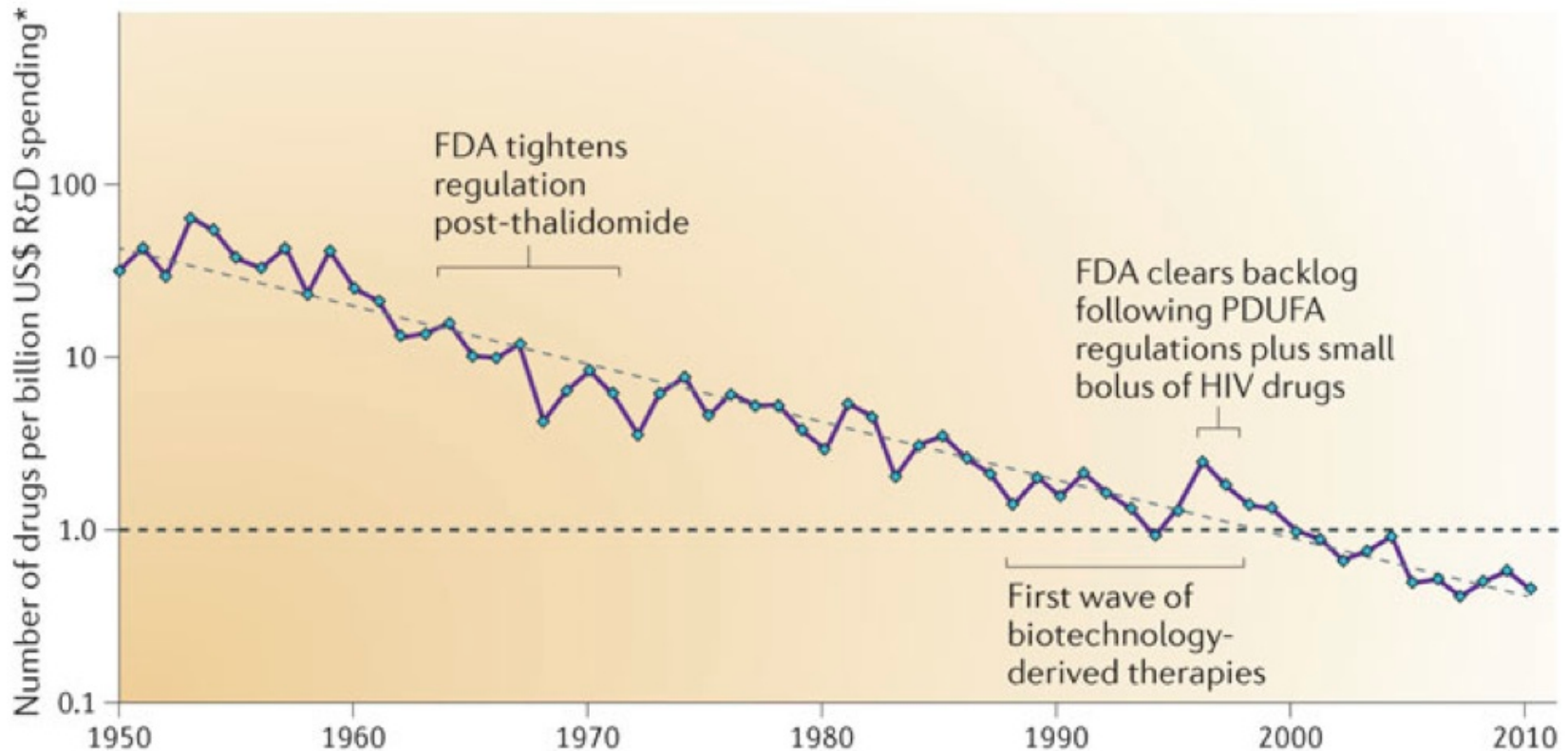
Flow
Cytometry

We can't keep doing what we have been doing

This requires moving beyond traditional data storage, management, and reporting techniques.

We need to move towards an end to end holistic approach to data and analysis across medical.

a Overall trend in R&D efficiency (inflation-adjusted)



FROM THE FOLLOWING ARTICLE:

Diagnosing the decline in pharmaceutical R&D efficiency

Jack W. Scannell, Alex Blanckley, Helen Boldon & Brian Warrington

Nature Reviews Drug Discovery **11**, 191-200 (March 2012)

Patient Demographic Data

Adverse Event Data

Lab Results

Outcomes/Real World Data

Next Generation Sequencing

Imaging

- Stop working for your data, put your data to work for you.
 - Tools and methods that work across systems and data formats
- Maximizing the potential of an Integrated Medical Platform requires moving beyond traditional data storage, management, and reporting techniques.
 - Reduce replication of data and
- Right data to the right person at the right time
 - Use analytics to identify areas of focus
- Effective collaboration with our external partners
 - Clinical Development is the ultimate team sport



HUMAN HEALTH | ENVIRONMENTAL HEALTH

Let's Jump In

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